



February 22, 2011

Illinois Environmental Protection Agency
Permit Section, Division of Water Pollution Control
P.O. Box 19276
Springfield, IL 62794-9276

Subject: Leachate Connection to Sanitary Sewer Forcemain
Mallard North Landfill
Forest Preserve District of DuPage County, Illinois

Dear Sir/Madam:

On behalf of the Forest Preserve District of DuPage County (FPD), RMT, Inc. (RMT) is submitting the attached Application for Permit or Construction Approval form WPC-PS-1, Schedules A/B, F, and N for the connection of the Mallard North Landfill (MNL) leachate collection system to an existing sanitary force main owned and operated by the Village of Hanover Park. The Village of Hanover Park has agreed to accept the leachate from MNL. We understand that there will be no review fee, since the FPD is a unit of government.

The MNL is owned by the FPD and is located in unincorporated DuPage County, near the village of Hanover Park. The site is located just south of Greenbrook Boulevard, north of the West Branch of the DuPage River (WBDR), and north of the Mallard Lake Landfill (see Figure 1).

The FPD currently collects leachate from the landfill with three pneumatic pumps for temporary storage in an above grade tank. A tank truck collects leachate daily from the tank for treatment at a local wastewater treatment plant. In order to reduce leachate disposal costs, the FPD plans to construct a small diameter leachate forcemain from the MNL site south to a lift station (refer to Figure 3), and then to the existing Village of Hanover Park 16-inch-diameter sanitary forcemain located south of the WBDR (refer to Figures 1 and 2). The FPD plans to construct the leachate connection in spring 2011.

Erosion controls will be used as noted on Figure 4. The project will not be located in the 100-year flood plain or in a wetland (maps are attached).

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Illinois Environmental Protection Agency
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Please review the application information and prepare the necessary permit. Your assistance is appreciated. Please call me at (608) 662-5121 office, or 608-358-5215 (cell), if you have any questions.

Sincerely,

RMT, Inc.

Jan C. Kucher, P.E.
Senior Engineer

Attachments: Attachment 1: Application for Permit or Construction Approval (WPC-PS-1)
– Schedule A/B
– Schedule F
– Schedule N
Attachment 2: Leachate Analysis
Attachment 3: HDPE Pipe Specifications
Attachment 4: Lift Station Calculations
Attachment 5: Figures
– Figure 1: Site layout
– Figure 2: Details
– Figure 3: Lift Station and Details
– Figure 4: Erosion Controls

cc: Joseph Benedict – Forest Preserve District of DuPage County
William Beckman – Village of Hanover Park

Attachment 1

Application for Permit or Construction Approval (WPC-PS-1)



Illinois Environmental Protection Agency
Permit Section, Division of Water Pollution Control
P.O. Box 19276
Springfield, Illinois 62794-9276

For IEPA Use:

**Application for Permit or Construction Approval
WPC-PS-1**

1. Owner Name: Forest Preserve District of DuPage County
Name of Project: Mallard North Landfill Leachate Connection to Village of Hanover Park Sanitary Force Main
Township: Bloomington Township County: DuPage County

2. Brief Description of Project:

The Forest Preserve District of DuPage County plans to connect the existing leachate extraction system at the closed Mallard North Landfill to an existing force main, owned and operated by the Village of Hanover Park. The existing force main is approximately 175 feet south of the landfill.

3. Documents Being Submitted: If the Project involves any of the items listed below, submit the corresponding schedule, and check the appropriate boxes.

	<u>Schedule</u>		<u>Schedule</u>
Private Sewer Connection/Extension	A/B <input checked="" type="checkbox"/>	Spray Irrigation	H <input type="checkbox"/>
Sewer Extension Construct Only	C <input type="checkbox"/>	Septic Tanks	I <input type="checkbox"/>
Sewage Treatment Works	D <input type="checkbox"/>	Industrial Treatment/Pretreatment	J <input type="checkbox"/>
Excess Flow Treatment	E <input type="checkbox"/>	Waste Characteristics	N <input checked="" type="checkbox"/>
Lift Station/Force Main	F <input checked="" type="checkbox"/>	Erosion Control	P <input type="checkbox"/>
Fast Track Service Connection	FTP <input type="checkbox"/>	Trust Disclosure	T <input type="checkbox"/>
Sludge Disposal	G <input type="checkbox"/>		

Plans: Title Figure 1 - Site Layout, Figure 2 - Details - Permit

No. of Pages: _____

Specifications: Title Attachment 2 - HDPE Pipe Specifications and Standard Specifications for Water and Sewer

Main Construction in Illinois

No. of Books/Pages: _____

Other Documents: NA
(Please Specify)

3.1 Illinois Historic Preservation Agency approval letter: Yes ☐ No ☒ (previous disturbances include landfill, sanitary forcemain, and river relocation)

4. Land Trust: Is the project identified in item number 1 herein, for which a permit is requested, to be constructed on land which is the subject of a trust? Yes ☐ No ☒

If yes, Schedule T (Trust Disclosure) must be completed and item number 7.1.1 must be signed by a beneficiary, trustee or trust officer.

5. This is an Application for (Check Appropriate Line):

- ☒ A. Joint Construction and Operating Permit
☐ B. Authorization to Construct (See Instructions) NPDES Permit No. IL00 _____
☐ C. Construct Only Permit (Does Not Include Operations)
☐ D. Operate Only Permit (Does Not Include Construction)

6. Certifications and Approval:

6.1 Certificate by Design Engineer (When required: refer to instructions)

I hereby certify that I am familiar with the information contained in this application, including the attached schedules indicated above, and that to the best of my knowledge and belief such information is true, complete and accurate. The plans and specifications (specifications other than Standard Specifications or local specifications on file with this Agency) as described above were prepared by me or under my direction.

Engineer Name: Jan C. Kucher

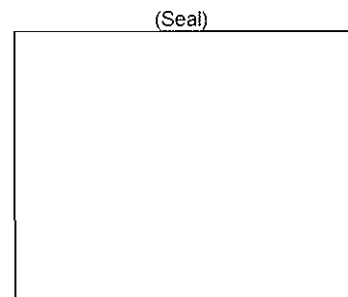
Registration Number: 062 - 048581
(3 digits) (6 digits)

Firm: RMT, Inc.

Address: 744 Heartland Trail

City: Madison State: WI Zip: 53717 Phone No: (608) 831-4444

Signature X _____ Date: _____



7. Certifications and Approvals for Permits:

7.1 Certificate by Applicant(s)

I/We hereby certify that I/we have read and thoroughly understand the conditions and requirements of this Application, and am/are authorized to sign this application in accordance with the Rules and Regulations of the Illinois Pollution Control Board. I/We hereby agree to conform with the Standard Conditions and with any other Special Conditions made part of this Permit.

7.1.1 Name of Applicant for Permit to Construct: Forest Preserve District of DuPage County

Address: 3S580 Naperville Road (60189-8761), PO Box 5000

City: Wheaton State: IL Zip Code: 60189-5000

Signature X _____ Date: _____

Printed Name: Joseph R. Benedict Phone No: (630) 462-5653

Title: Director

Organization: Forest Preserve District of DuPage County

7.1.2 Name of Applicant for Permit to Own and Operate: Forest Preserve District of DuPage County

Address: 3S580 Naperville Road (60189-8761), PO Box 5000

City: Wheaton State: IL Zip Code: 60189-5000

Signature X _____ Date: _____

Printed Name: Joseph R. Benedict Phone No: (630) 462-5653

Title: Director

7.2 Attested (Required When Applicant is a Unit of Government)

Signature X _____ Date: _____

Title: _____
(City Clerk, Village Clerk, Sanitary District Clerk, Etc.)

7.3 Applications from non-governmental applicants which are not signed by the owner, must be signed by a principal executive officer of at least the level of vice president, or a duly authorized representative.

7.4 Certificate By Intermediate Sewer Owner

I hereby certify that (Please check one):

- ☒ 1. The sewers to which this project will be tributary have adequate reserve capacity to transport the wastewater that will be added by this project without causing a violation of the environmental Protection Act or Subtitle C, Chapter I, or
- ☐ 2. The Illinois Pollution Control Board, in PCB _____ dated _____ granted a variance from Subtitle C, Chapter I to allow construction of facilities that are the subject of this application.

Name and location of sewer system to which this project will be tributary:

Sewer System Owner: Village of Hanover Park

Address: Public Works Facility, 2121 West Lake Street

City: Hanover Park State: IL Zip Code: 60133

Signature X _____ Date: _____

Printed Name: William J. Beckman, P.E. Phone No: 630-372-4271

Title: Village Engineer

7.4.1 Additional Certificate By Intermediate Sewer Owner

I hereby certify that (Please check one):

- ☐ 1. The sewers to which this project will be tributary have adequate reserve capacity to transport the wastewater that will be added by this project without causing a violation of the environmental Protection Act or Subtitle C, Chapter I, or
- ☐ 2. The Illinois Pollution Control Board, in PCB _____ dated _____ granted a variance from Subtitle C, Chapter I to allow construction facilities that are the subject of this application.
- ☒ 3. Not applicable

Name and location of sewer system to which this project will be tributary:

Sewer System Owner: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Signature X _____ Date: _____

Printed Name: _____ Phone No: _____

Title: _____

7.5 Certificate By Waste Treatment Works Owner

I hereby certify that (Please check one):

- ☒ 1. The waste treatment plant to which this project will be tributary has adequate reserve capacity to treat the wastewater that will be added by this project without causing a violation of the Environmental Protection Act or Subtitle C, Chapter I, or
- ☐ 2. The Illinois Pollution Control Board, in PCB _____ dated _____ granted a variance from Subtitle C, Chapter I to allow construction and operation of the facilities that are the subject of this application.
- ☐ 3. Not applicable

I also certify that, if applicable, the industrial waste discharges described in the application are capable of being treated by the treatment works.

Name of Waste Treatment Works: Village of Hanover Park Waste Water Treatment Plant

Waste Treatment Works Owner: Village of Hanover Park

Address: Public Works Facility, 2121 West Lake Street

City: Hanover Park State: IL Zip Code: 60133

Signature X _____ Date: _____

Printed Name: William J. Beckman, P.E. Phone No: 630-372-4271

Title: Village Engineer

Please return completed form to the following address:

Illinois Environmental Protection Agency
Permit Section, Division of Water Pollution Control
P.O. Box 19276
Springfield, Illinois 62794-9276

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

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IL 532-0010

WPC 150

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF WATER POLLUTION CONTROL
PERMIT SECTION
Springfield, Illinois 62794-9276

SCHEDULE A/B

APPLICATION FOR SANITARY SEWER: (please check one or both boxes as applicable)

Service Connection – Schedule A ☒

Publicly Owned or Regulated Extensions – Schedule B ☐

1. **NAME OF PROJECT:** Mallard North Landfill Leachate Connection to Hanover Park Force Main
2. **TYPE OF SERVICE(S):** Residential ☐ ; Commercial ☐ ; Light Industrial (Domestic Waste Only) ☐ ;
Manufacturing ☐ ; Recreational ☐ ; Other ☒ (check all that apply)
3. **NATURE OF PROJECT:** Project consists of: a sewer extension ☐ ; a sewer connection ☒ ;
a trunk sewer ☐ ; a replacement sewer ☐ ; a relief sewer ☐ ; an interceptor sewer ☐ ;
a new sanitary sewer ☐ . (check all that apply)
4. **PROJECT LOCATION, SERVICE AREA AND POPULATION:** Submit map(s) of the service area that includes the following:
 - 4.1 An 8½ X 11 inch detailed project location map or USGS map showing the project with respect to major roadways. In lieu of this map, a letter from the Illinois Historic Preservation Agency indicating compliance with the Illinois Historic Preservation Act for this project may be submitted.
 - 4.2 The proposed sewer layout and project location.
Township 40N Section 7 Range 10E
 - 4.3 Residential and/or non-residential areas and their associated waste loads to be immediately served by the sewers of this project.
 - 4.4 Potential residential and/or non-residential areas and their associated loads must be included in the overall design of the sewers of this project.
5. **FACILITIES PLANNING AREA:** This project is ☒ is not ☐ being constructed entirely within the Facilities Planning Area (FPA) boundaries. Name of FPA: Village of Hanover Park
6. **TYPE OF DEVELOPMENT:** The following design criteria should be used in estimating the population equivalent (P.E.) of a residential building:

Efficiency or Studio Apartment	= 1	P.E.	Commonly used quantities of sewage flows from miscellaneous type facilities are listed in Appendix B, Table No. 2 of the Illinois Recommended Standards for Sewage Works.
1 Bedroom Apartment	= 1.5	P.E.	
2 Bedroom Apartment	= 3	P.E.	
3 Bedroom Apartment	= 3	P.E.	
Single Family Home	= 3.5	P.E.	
Mobile Home	= 2.25	P.E.	

- 6.1 **RESIDENTIAL BUILDINGS:** Number of building(s) NA ;
Number of single family dwelling building(s) NA ; Number of multiple dwelling buildings* NA ;
Estimated total population equivalent NA P.E.
* Please provide an itemized list for each multiple dwelling building including: Number of 1, 2 and 3 bedroom units; the total P.E. for the each building and the total P.E. for multiple family dwellings.

6.2 **NON-RESIDENTIAL BUILDINGS:** Describe use of building(s)

Not applicable.

Principal product(s) or activities

Extraction of landfill gas, condensate, and leachate from a municipal solid waste closed landfill. Leachate and condensate is to be pumped into the Hanover Park sanitary forcemain.

Number of non-residential building(s) to be served under this Permit NA

Non domestic liquid waste is ☒ (see section 6.5) is not ☐ produced inside the building(s). If liquid wastes other than domestic are produced, submit Schedule N.

Estimated number of employees NA; Estimated number of occupants (transients) NA.

Estimated population equivalent (one population equivalent is 100 gallons of sewage per day, containing 0.17 pounds of BOD₅ and 0.20 pounds of suspended solids). *Assuming COD = BOD.

Flow P.E. 200; BOD P.E. 245*; Suspended Solids P.E. 29.

6.3 Total loading for project (Sum of 6.1 and 6.2) Design Average Flow 20,000 GPD; Design Max. Flow 60,000 GPD; P.E. NA BOD; P.E. NA Suspended Solids

6.4 Commencing July 1, 2003, Section 12.2 of the Environmental Protection Act (415 ILCS 5/12.2, as amended by P.A. 93-32) requires the Agency to collect a fee for certain applications for the installation of sanitary sewer connections and extension. Except for the conditions listed below, the following fee schedule shall apply:

Fee Dollars	Population Equivalents
100	1
400	2 - 20
800	21 - 100
1200	101 - 499
2400	500 or more

Please send the appropriate fee based upon section 6.4 or 6.5; certified or cashiers check made out to: "Treasurer, State of Illinois, Environmental Protection Permit and Inspection Fund" with the applicant's Federal Employee Identification Number (FEIN) appearing on the face of the check and submit along with this schedule. Any fee remitted to the Agency shall not be refunded at any time or for any reason, either in whole or in part.

The Sewer Permit fee does not apply to:

- a) Any Department, Agency or Unit of State Government
- b) Any unit of local government where **all** of the following conditions are met;
 - 1) The cost of the installation or extension is paid wholly from monies of the unit of local government, state grants or loans, federal grants or loads, or any combination thereof;
 - 2) The unit of local government is **NOT** given monies, reimbursed or paid, either in whole or in part, by another person (except for State grants or loans or federal grants or loans;
- c) 1) Include a certified copy of the budget item or the board or council minutes which authorize the construction of this project with only local funds; and
- 2) I/we

(Signature for Unit of Government)

hereby certify that subsections (b)(1), (b)(2) and (c)(1) have been met.

6.5 A \$1,000 fee shall be required for any industrial wastewater source that does not require pretreatment of the wastewater prior to discharge to the publicly owned treatment works or publicly regulated treatment works.

7. **DEVIATION FROM DESIGN CRITERIA:** The design criteria for sewers are contained in the "Illinois Recommended Standards for Sewage Works", Current Edition. This submittal does ☐ does not ☒ include deviations from said criteria. If deviations are included, justification for said deviations must be attached.

8. **INFILTRATION/EXFILTRATION LIMITS:** 200 gallons per inch diameter of sewer pipe per mile per day.

9. **SUMMARY OF SEWERS:**

Submit plan and profile drawings for all sanitary sewer extensions and for all sanitary sewer connections where either the domestic wastewater source serves more than one building, where the domestic wastewater source is 15 P.E. or more, where non-domestic waste is produced or where the connection is not direct to either a publicly-owned or publicly-regulated sewer.

	Service Connections	Publicly Owned or Regulated Extensions				
Pipe size – inches	4					
Total Length – feet	880					
Min. slope used - %	0.5					
Max. slope used - %	12.6					
Min. cover over sewers - feet	2*					
Pipe Material & Specs.	HDPE SDR 17					
Joint Material & Specs.	Electro Fusion					
Total Manholes	2					
Max. Distance Between Manholes	815					
Bedding Class for Rigid Pipe (A, B, or C per ASTM C12)	NA					
Bedding Class for Flexible Pipe (IA, IB, II, or III per ASTM 2321-89)	III - outside of waste					

9.1 Is the project located in a flood plain? YES ☐ NO ☒ If yes, contact the Illinois Department of Natural Resources, Division of Water Resources Management for further permit requirements.

9.2 Water tight manhole covers used on all manholes where the manhole tops are below cover or where the tops may be flooded by surface runoff or high water? YES ☒ NO ☐

10. **EROSION CONTROL:** The design criteria for Erosion Control are contained in the "Illinois Urban Manual" Current Edition, distributed by the National Resource Conservation Service. This submittal does ☐ does not ☒ include deviation from said criteria. If deviations are included, justification for said criteria must be attached. (See instructions for Schedule P to determine if Schedule P must be submitted.)

* Insulation will be added if cover is less than 4 feet.

11. EXISTING SEWER SYSTEM:

A. This project will connect to one of the following:

- | | |
|--|--|
| 1. existing sanitary sewer <input checked="" type="checkbox"/> | 4. permitted combined sewer <input type="checkbox"/> |
| 2. existing combined sewer <input type="checkbox"/> | 5. proposed sanitary sewer <input type="checkbox"/> |
| 3. permitted sanitary sewer <input type="checkbox"/> | 6. proposed combined sewer <input type="checkbox"/> |

If permitted but not constructed and operational provide permit number _____

B. Size and location of downstream sewer(s):

Existing 16-inch-diameter force main approximately 175 feet south of the Mallard North Landfill.

12. **WATER SUPPLY PROTECTION:** The horizontal and/or vertical separation between sanitary sewers and watermain(s) is in accordance with Section 370.350 of the Illinois Recommended Standards for Sewage Works. YES ☒ NO ☐ .

The location of proposed and existing watermain(s) must be shown in both the plan and profile views on plan sheet(s) for each water-sewer line crossing and at all locations within 10 feet horizontal distance of the proposed sewer line. Detailed drawing(s) for crossings, either typical or site-specific, shall be shown on the plan sheet(s).

12.1 HORIZONTAL SEPARATION: All sewer line(s) is(are) 10 feet from water line(s) YES ☒ NO ☐

If no, provide justification AND describe the precautionary features against contamination

No water lines in area

All proposed forcemain(s) 10 feet from water line(s) YES ☐ NO ☐ N/A ☒ .

12.2 VERTICAL SEPARATION:

- A. The water line(s) is(are) at least 18 inches above the sewer line(s) YES ☐ NO ☐ . If no, continue with 12.2.B and provide justification below as to why this is not possible and describe precautionary measures taken to prevent contamination.
- B. The water line(s) is(are) above the sewer line(s) but less than 18 inches YES ☐ NO ☐ . If no, continue with 12.2.C and provide justification below as to why this is not possible and describe precautionary measures taken to prevent contamination.
- C. The water line(s) is(are) at least 18 inches below the sewer line(s) YES ☐ NO ☐ . If no, provide justification below as to why this is not possible and describe precautionary measures taken to prevent contamination.

Justification and precautionary measures:

No water lines in area

12.3 Proximity to wells, reservoirs, and other potable water sources: YES ☐ N/A ☒ .

If Yes, Minimum distance _____ feet. Describe precautionary measures taken to avoid contamination:

Location of all potable water sources shown on plan sheets. YES ☐ NO ☐ NO KNOWN SOURCES ☒

13. PIPE AND MANHOLE TESTING:

- | | | |
|--|---|--|
| Is infiltration testing included in plans, specifications, or special provisions? | YES <input type="checkbox"/> | NO <input checked="" type="checkbox"/> |
| Is exfiltration test included in plans, specifications, or special provisions? | YES <input type="checkbox"/> | NO <input checked="" type="checkbox"/> |
| Is air testing included in plans, specifications, or special provisions? | YES <input checked="" type="checkbox"/> | NO <input type="checkbox"/> |
| Leakage testing for manholes included in plans, specifications, or special provisions? | YES <input checked="" type="checkbox"/> | NO <input type="checkbox"/> |

14. FLEXIBLE PIPE TESTING:

Is deflection test included in plans, specifications, or special provisions in accordance with the Illinois Recommended Standards for Sewage Works, Current Edition? YES ☐ NO ☒ N/A ☐

15. MISCELLANEOUS REQUIREMENTS:

The following requirements should be included on the plan sheets where so indicated. For items where this is not specified, the requirements may be on the plan sheets, in the specifications, or in the special provisions:

- 15.1 Standard Specifications for Water and Sewer Main Construction in Illinois, Current Edition, govern the construction of this project. YES ☒ NO ☐ . If no, please provide specifications.
- 15.2 Pipe and joint ASTM/AWWA designation included on plan sheets. YES ☒ NO ☐
- 15.3 All flexible gravity sewer pipe installed in accordance with ASTM D2321-89; embedment materials for bedding, haunching, and initial backfill to at least 6 inches over the top of the pipe with Class IA or IB or II or III; processed material produced for highway construction used in the project classified according to particle size, shape, and gradation in accordance with ASTM D2321-89, Section 9 and Table 1. YES ☒ NO ☐ N/A ☐ .
- 15.4 All rigid gravity sewer pipe installed in accordance with ASTM C12 and bedding material Class A, B, or C. YES ☐ NO ☐ N/A ☒
- 15.5 Pickholes in all manholes likely to be flooded not larger than 1 inch in diameter and of the concealed type. YES ☒ NO ☐ N/A ☐
- 15.6 All manholes numbered. YES ☒ NO ☐ N/A ☐
- 15.7 Match lines shown on all plan sheets. YES ☐ NO ☐ N/A ☒

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

Illinois Environmental Protection Agency
Division of Water Pollution Control, Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276

Schedule F - Sewer System Lift Station / Force Main

1. **Name of Project:** Mallard North Landfill Leachate Connection to Village of Hanover Park Sanitary Force Main
2. **Design Population:**
Area to be served NA acres. Population to be served NA P.E..
3. **Design Flows:**
Design Average Flow 14 gpm. Design Maximum Flow 40 gpm.
4. **Lift Station will serve:**
☐ Only separate sewers ☐ Only combined sewers ☐ Separate and combined sewers
☐ Domestic waste sewers ☒ Industrial waste sewers ☐ Domestic and industrial waste sewers
5. **Lift Station is designed to serve:**
☐ Only the population indicated above ☐ An anticipated additional waste contribution of NA P.E.
6. **Force Main:**
Size of Force Main (inches) 4 Total Length (feet) 65
Pipe material specifications HDPE Joint specifications Fusion
Are air relief valves provided at high points? ☐ Yes ☒ No
Are clean-outs (blow-offs) provided at low points? ☐ Yes ☒ No
7. **Design Head (Total Dynamic Head):**
A) **Static Head:** Discharge Elevation: 772.0
Existing Force Low Water Elevation: 765.5
Main Tie-in = 45.7 ft
Pressure ~19.8 psig Static Head 55.0 Feet
B) **Pipe friction loss:** 5.0 Feet at "C" = 1.0
C) **Minor Losses** (Valves, etc.) 1.0 Feet at "C" = 100
Total Dynamic Head (A + B + C) 61 Feet
Maximum Suction Lift (if applicable) NA Feet

8. **Pumps**

Number of Pumps	Type of Pump	GPM per Pump	at TDH (Feet)	H.P. of Each Pump	Pass 3" Spheres
2	Grundfos Submersible 1 hp, single phase	40	61	1.03	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
					<input type="checkbox"/> Yes <input type="checkbox"/> No
					<input type="checkbox"/> Yes <input type="checkbox"/> No

- a. Rated Capacity of Lift Station 40 gpm at 61 feet of TDH.
- b. Pumping Capacity with Largest Unit Out of Service 0 gpm at feet of TDH.
- c. Are all pumps with positive suction head and/or self priming? ☒ Yes ☐ No
- d. Have provisions been made to detect shaft seal failure or potential shaft seal failure? ☐ Yes ☒ No

Schedule F - Sewer System Lift Station / Force Main

Page 2

9. Valves

- a. Discharge Pipe ☒ Gate ☐ Check ☐ Other _____
b. Suction Line (if applicable) ☐ Gate ☐ Check ☐ Other NA

10. Wet Well

- a. Effective capacity (volume between pumps off and pumps on switches) = 633 gallons
b. Detention time at design flow = 16 minutes
c. Are there provisions for pump removal? ☒ Yes ☐ No

11. Buoyancy Calculations

- a. Have buoyancy calculations been submitted? ☒ Yes ☐ No ☐ N/A
b. Depth of groundwater table: 0 feet below the ground surface.

12. Accessibility

- a. Is the pump station accessible by an all weather road? ☒ Yes ☐ No

13. Ventilation

- a. Wet Well:
Continuous with at least 12 complete air changes per hour? ☐ Yes ☒ No
Intermittent with at least 30 complete air changes per hour? ☐ Yes ☒ No
b. Dry Well (if applicable):
Continuous with at least 6 complete air changes per hour? ☐ Yes ☐ No ☒ N/A
Intermittent with at least 30 complete air changes per hour? ☐ Yes ☐ No ☒ N/A
c. Is portable ventilation equipment available for use at all times? ☐ Yes ☒ No

14. Emergency Operations

- a. In case of power failure, is an alternate power supply available? ☐ Yes ☒ No
If yes, please describe the source: _____
b. Is a portable pump, with adequate pumping capacity, available for use at all times? ☐ Yes ☒ No
c. Has a riser from the force main been provided to hook-up portable pumps? ☐ Yes ☒ No
d. Length of time between a power failure and commencement of pumping by emergency equipment NA
e. Estimated time interval before damage or sewer backup will occur NA
f. Type of alarm system proposed: ☒ Telemetry System ☐ Audio-Visual with self contained power
g. Are personnel available at all times to operate emergency equipment? ☐ Yes ☒ No

15. Flow Measurement

- a. Type of flow measurement provided: ☒ Flow meter ☐ Elapsed time meters ☐ ITR

16. Compliance with Illinois Recommended Standards for Sewage Works

- a. Can the pump station remain operational during the 25 year flood? ☒ Yes ☐ No
b. Is the pump station protected from physical damage during the 100 year flood? ☒ Yes ☐ No
c. When applicable, will electrical systems and components comply with NEC requirements for Class I, Group D, Division I locations? ☒ Yes ☐ No
d. Have provisions been made to automatically alternate the pumps? ☐ Yes ☒ No
e. Is the motor control center located outside and protected by a conduit seal? ☒ Yes ☐ No
f. Can the motor be electronically disconnected without disturbing the seal? ☒ Yes ☐ No

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 1112, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that section. Failure to do so may prevent this form from being processed and could result in your application being denied.

For IEPA Use:

LOG #

DATE RECEIVED:

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF WATER POLLUTION CONTROL
PERMIT SECTION
Springfield, Illinois 62794-9276**

SCHEDULE N WASTE CHARACTERISTICS

1. Name of Project Mallard North Landfill Leachate Connection to Village of Hanover Park Sanitary Forcemain

2. <u>FLOW DATA</u>	<u>EXISTING</u>	<u>PROPOSED-DESIGN</u>
2.1 Average Flow (gpd)	_____	<u>20,000</u>
2.2 Maximum Daily Flow (gpd)	_____	<u>60,000</u>

2.3 TEMPERATURE Approximately 70-80°F (leachate from closed landfill)

<u>Time of Year</u>	<u>Avg. Intake Temp. F</u>	<u>Avg. Effluent Temp. F</u>	<u>Max. Intake Temp F</u>	<u>Max. Effluent Temp F</u>	<u>Max. Temp. Outside Mixing Zone F</u>
SUMMER	_____	_____	_____	_____	_____
WINTER	_____	_____	_____	_____	_____

2.4 Minimum 7-day, 10-year flow: N/A cfs _____ MGD.

2.5 Dilution Ratio: N/A ; _____

2.6 Stream flow rate at time of sampling N/A cfs N/A MGD.

3. CHEMICAL CONSTITUENT Existing Permitted Conditions ☐ ; Existing conditions ☒ ; Proposed Permitted Conditions ☐

Type of sample: ☒ grab (time of collection 13:30); ☐ composite (Number of samples per day _____)

(see instructions for analyses required) 5/28/2010; see attached analysis

CONSTITUENT	RAW WASTE (mg/l)	TREATED EFFLUENT Avg. (mg/l) Max.	UPSTREAM (mg/l)	DOWNSTREAM SAMPLES (mg/l)
Ammonia Nitrogen (as N)				
Arsenic (total)				
Barium				
Boron				
BOD ₅				
Cadmium				
Carbon Chloroform Extract				
Chloride				
Chromium (total hexavalent)				
Chromium (total trivalent)				

CONSTITUENT	RAW WASTE (mg/l)	TREATED EFFLUENT Avg. (mg/l) Max.	UPSTREAM (mg/l)	DOWNSTREAM SAMPLES (mg/l)
Copper				
Cyanide (total)				
Cyanide (readily released @ 150° F & pH 4.5)				
Dissolved Oxygen				
Fecal Coliform				
Fluoride				
Hardness (as Ca CO ₃)				
Iron (total)				
Lead				
Manganese				
MBAS				
Mercury				
Nickel				
Nitrates (as N)				
Oil & Grease (hexane solubles or equivalent)				
Organic Nitrogen (as N)				
pH				
Phenols				
Phosphorous (as P)				
Radioactivity				
Selenium				
Silver				
Sulfate				
Suspended Solids				
Total Dissolved Solids				
Zinc				
Others				

Attachment 2
Leachate Analysis



TESTING SERVICE CORPORATION

Corporate Office:

360 S. Main Place, Carol Stream, IL 60188-2404
630.462.2600 • Fax 630.653.2968

December 30, 2010

Mr. Drew Bergenthal
Forest Preserve District of Du Page County
3 S. 580 Naperville Road
Wheaton, IL 60189-8761

Re: L - 61,102
Mallard North Landfill
Leachate Sampling Well EWL2
2nd 2010 Semi-Annual Event
Fox River Water Reclamation District

Dear Mr. Bergenthal:

Testing Service Corporation has completed the 2nd 2010 Semi-Annual Leachate Sampling of well EWL2 at Mallard North Landfill. A new disposable sample bailer was used to collect the leachate. The leachate was transferred to appropriate sample containers, placed in an ice filled chest and transported to First Environmental Laboratories, Inc., in Naperville, Illinois. Analysis was performed for the semi-annual parameters, as prescribed by the Fox River Water Reclamation District. Copies of the Analytical Report and Chain-of-Custody are enclosed.

It has been a pleasure to assist you with this work. Please call me at (630) 784-4005 if there are any questions or when we can be of further service.

Respectfully,

TESTING SERVICE CORPORATION

David L. Hurst
Environmental Department Manager

Enc. Analytical Report
Chain of Custody



**First
Environmental
Laboratories, Inc.**

IL ELAP / NELAC Accreditation # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

December 30, 2010

Mr. Dave Hurst
TESTING SERVICE CORP.
360 So. Main Place
Carol Stream, IL 60188

Project ID: 61.102
First Environmental File ID: 10-5666
Date Received: December 23, 2010


Dear Mr. Dave Hurst:

The above referenced project was analyzed as directed on the enclosed chain of custody record.

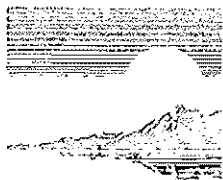
All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our accreditation number is 100292 and our current certificate is number 002468: effective 02/23/2010 through 02/28/2011.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200 or stan@firstenv.com.

Sincerely,



Stan Zawotski
Project Manager



**First
Environmental
Laboratories, Inc.**

IL ELAP / NELAC Accreditation # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

Case Narrative

TESTING SERVICE CORP.

Project ID: 61.102

First Environmental File ID: 10-5666

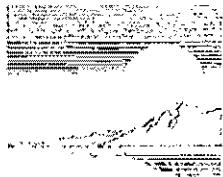
Date Received: December 23, 2010

Flag	Description	Flag	Description
<	Analyte not detected at or above the reporting limit.	I+	LCS recovery outside control limits; high bias.
B	Analyte detected in associated method blank.	L-	LCS recovery outside control limits; low bias.
C	Identification confirmed by GC/MS.	M	MS recovery outside control limits; LCS acceptable.
D	Surrogates diluted out; recovery not available.	M+	MS recovery outside control limits high bias; LCS acceptable.
E	Estimated result; concentration exceeds calibration range.	M-	MS recovery outside control limits low bias; LCS acceptable.
F	Field measurement.	N	Analyte is not part of our NELAC accreditation.
		ND	Analyte was not detected using a library search routine; No calibration standard was analyzed.
G	Surrogate recovery outside control limits; matrix effect.	P	Chemical preservation pH adjusted in lab.
H	Analysis or extraction holding time exceeded.	Q	The analyte was determined by a GC/MS database search.
J	Estimated result; concentration is less than calib range.	S	Analyte was sub-contracted to another laboratory for analysis.
K	RPD outside control limits.	T	Sample temperature upon receipt exceeded 0-6°C.
RL	Routine Reporting Limit (Lowest amount that can be detected when routine weights/volumes are used without dilution.)	W	Reporting limit elevated due to sample matrix.

All quality control criteria, as outlined in the methods, have been met except as noted below or on the following analytical report.

Sample Batch Comments:

Time of sample collection was not provided.



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IL ELAP / NELAC Accreditation # 100292

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Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 61.102
Sample ID: EWL-2, 4Q2010
Sample No: 10-5666-001

Date Collected: 12/23/10
Time Collected:
Date Received: 12/23/10
Date Reported: 12/30/10

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 624		
Analysis Date: 12/28/10				
Acrolein	< 100	100	ug/L	
Acrylonitrile	< 100	100	ug/L	
Benzene	7.3	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	40.3	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
2-Chloroethyl vinyl ether	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,2-Dichlorobenzene	< 5.0	5.0	ug/L	
1,3-Dichlorobenzene	< 5.0	5.0	ug/L	
1,4-Dichlorobenzene	10.4	5.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 1.0	1.0	ug/L	
trans-1,2-Dichloroethene	< 1.0	1.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 5.0	5.0	ug/L	
trans-1,3-Dichloropropene	< 5.0	5.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	



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Laboratories, Inc.**

IL ELAP / NELAC Accreditation # 100292

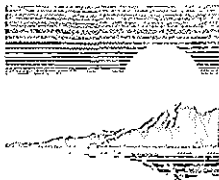
1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 61.102
Sample ID: EWL-2, 4Q2010
Sample No: 10-5666-001

Date Collected: 12/23/10
Time Collected:
Date Received: 12/23/10
Date Reported: 12/30/10

Analyte	Result	R.L.	Units	Flags
Ammonia (as N) Method: 350.1R2.0				
Analysis Date: 12/28/10				
Ammonia (as N)	210	0.10	mg/L	
COD Method: 5220D				
Analysis Date: 12/28/10				
COD	306	10	mg/L	
Cyanide, Total Method: 335.4R1.0				
Analysis Date: 12/29/10				
Cyanide, Total	0.005	0.005	mg/L	
Oil & Grease Method: 1664A				
Analysis Date: 12/28/10				
Oil & Grease	2	1	mg/L	
pH @ 25°C Method: 4500H+,B				
Analysis Date: 12/27/10 11:15				
pH @ 25°C	7.53		Units	
Phosphorus (as P) Method: 4500P,B,E				
Analysis Date: 12/29/10				
Phosphorus (as P)	< 0.01	0.01	mg/L	
Phenols Method: 420.4R1.0				
Analysis Date: 12/30/10				
Phenols	0.011	0.010	mg/L	
Total Metals Method: 200.7R4.4 Preparation Method 200.7W				
Analysis Date: 12/29/10				Preparation Date: 12/28/10
Arsenic	< 0.002	0.002	mg/L	
Barium	0.492	0.001	mg/L	
Cadmium	< 0.001	0.001	mg/L	
Chromium	0.004	0.001	mg/L	
Copper	< 0.001	0.001	mg/L	
Iron	31.4	0.01	mg/L	
Lead	0.003	0.002	mg/L	
Manganese	0.232	0.001	mg/L	
Nickel	0.025	0.001	mg/L	
Zinc	0.023	0.005	mg/L	



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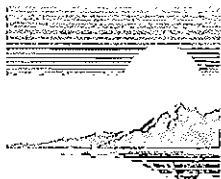
1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 61.102
Sample ID: EWL-2, 4Q2010
Sample No: 10-5666-001

Date Collected: 12/23/10
Time Collected:
Date Received: 12/23/10
Date Reported: 12/30/10

Analyte	Result	R.L.	Units	Flags
Total Metals	Method: 245.1R3.0			
Analysis Date: 12/29/10				
Mercury	< 0.0005	0.0005	mg/L	



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Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 61.102
Sample ID: Trip Blank
Sample No: 10-5666-002

Date Collected:
Time Collected:
Date Received: 12/23/10
Date Reported: 12/30/10

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 624		
Analysis Date: 12/27/10				
Acrolein	< 100	100	ug/L	
Acrylonitrile	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
2-Chloroethyl vinyl ether	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,2-Dichlorobenzene	< 5.0	5.0	ug/L	
1,3-Dichlorobenzene	< 5.0	5.0	ug/L	
1,4-Dichlorobenzene	< 5.0	5.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 1.0	1.0	ug/L	
trans-1,2-Dichloroethene	< 1.0	1.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 5.0	5.0	ug/L	
trans-1,3-Dichloropropene	< 5.0	5.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	



1600 Shore Road, Suite D
Naperville, Illinois 60563
Phone: (630) 778-1200 • Fax: (630) 778-1233
E-mail: firstinfo@firstenv.com
IEPA Certification #100292

CHAIN OF CUSTODY RECORD

INVOICE TO
FEDERAL

Page ____ of ____ pgs

Sampled By: D. H. Jones

P.O. #.:

Lab I.D.

EWL-2, 4Q, 2010
Trip Blank #2

41

15-5666-001
042

FOR LAB USE ONLY:

Freezer Temperature: _____ °C

Notes and Special Instructions:

12/23/10 10:20

Date/Time

TSC # L - 61,102

Mallard North Landfill- Leachate Sampling and Analysis

Semi-Annual Leachate Analysis Parameters

For both semi-annual sampling events:

Cadmium ✓
Chromium ✓
Copper ✓
Cyanide ✓
Lead ✓
Mercury ✓
Nickel ✓
Zinc ✓
Ammonia Nitrogen (as N) ✓
Arsenic ✓
Barium ✓
C.O.D. ✓
Iron ✓
Fats, Oil and Grease ✓
Manganese ✓
pH ✓
Phenol ✓
Phosphorous ✓

AND ✓ VOLATILE FRACTION OR PRIORITY POLLUTANTS
FOR WASTE WATER

Sampled annually for:

USEPA Priority Pollutants for Wastewater

Total TCDD*

Total HxCDD*

Total PeCDD*

Total HpCDD*

OCDD*

*Using USEPA Method 8280



**First
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IL ELAP / NELAC Accreditation # 100292

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March 12, 2010

Mr. Dave Hurst
TESTING SERVICE CORP.
360 So. Main Place
Carol Stream, IL 60188

Project ID: 53152
First Environmental File ID: 10-0774
Date Received: March 05, 2010

Dear Mr. Dave Hurst:

The above referenced project was analyzed as directed on the enclosed chain of custody record.

All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our accreditation number is 100292 and our current certificate is number 002205; effective 02/06/09 through 02/28/10.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200 or stan@firstenv.com.

Sincerely,



Stan Zaworski
Project Manager



**First
Environmental
Laboratories, Inc.**

IL ELAP / NELAC Accreditation # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

Case Narrative

TESTING SERVICE CORP.

Project ID: **53152**

First Environmental File ID: **10-0774**

Date Received: **March 05, 2010**

Flag	Description	Flag	Description
<	Analyte not detected at or above the reporting limit.	L+	LCS recovery outside control limits; high bias.
B	Analyte detected in associated method blank.	L-	LCS recovery outside control limits; low bias.
C	Identification confirmed by GC/MS.	M	MS recovery outside control limits; LCS acceptable.
D	Surrogates diluted out; recovery not available.	M+	MS recovery outside control limits high bias; LCS acceptable.
E	Estimated result; concentration exceeds calibration range.	M-	MS recovery outside control limits low bias; LCS acceptable.
F	Field measurement.	N	Analyte is not part of our NELAC accreditation.
		ND	Analyte was not detected using a library search routine; No calibration standard was analyzed.
G	Surrogate recovery outside control limits; matrix effect.	P	Chemical preservation pH adjusted in lab.
H	Analysis or extraction holding time exceeded.	Q	The analyte was determined by a GC/MS database search.
J	Estimated result; concentration is less than calib range.	S	Analyte was sub-contracted to another laboratory for analysis.
K	RPD outside control limits.	T	Sample temperature upon receipt exceeded 0-6°C
RL	Routine Reporting Limit (Lowest amount that can be detected when routine weights/volumes are used without dilution.)	W	Reporting limit elevated due to sample matrix.

All quality control criteria, as outlined in the methods, have been met except as noted below or on the following analytical report.

Sample Batch Comments:

Sample acceptance criteria were met.



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ILELAP / NELAC Accreditation # 100292

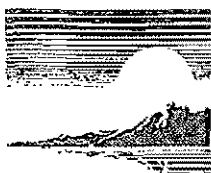
1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 53152
Sample ID: EWL-2; 1Q 2010
Sample No: 10-0774-001

Date Collected: 03/05/10
Time Collected: 8:15
Date Received: 03/05/10
Date Reported: 03/12/10

Analyte	Result	R.L.	Units	Flags
Ammonia (as N) Analysis Date: 03/11/10 Method: 350.1R2.0				
Ammonia (as N)	94.8	0.10	mg/L	
COD Analysis Date: 03/08/10 Method: 5220D				
COD	147	10	mg/L	
Cyanide, Total Analysis Date: 03/12/10 Method: 4500CN,C,E				
Cyanide, Total	0.006	0.005	mg/L	
Oil & Grease Analysis Date: 03/08/10 Method: 1664A				
Oil & Grease	< 1	1	mg/L	
pH @ 25°C Analysis Date: 03/05/10 16:00 Method: 4500H+,B				
pH @ 25°C	7.06		Units	
Phenols Analysis Date: 03/11/10 Method: 420.4R1.0				
Phenols	0.019	0.010	mg/L	
Chromium, Hexavalent Analysis Date: 03/11/10 15:00 Method: 3500Cr,B				
Chromium, Hexavalent	< 0.050	0.05	mg/L	
Chromium, trivalent Analysis Date: 03/12/10 Method: CALC				
Chromium, Trivalent	< 0.005	0.005	mg/L	
Chloride Analysis Date: 03/12/10 Method: 4500Cl, E				
Chloride	530	5	mg/L	
Total Metals Analysis Date: 03/12/10 Method: 6020A				
		Preparation Method 3010A		
		Preparation Date: 03/09/10		
Arsenic	< 0.002	0.002	mg/L	
Barium	0.346	0.001	mg/L	
Boron	1.42	0.01	mg/L	
Cadmium	< 0.001	0.001	mg/L	
Chromium	< 0.001	0.001	mg/L	
Copper	0.003	0.001	mg/L	



**First
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Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 53152
Sample ID: EWL-2; 1Q 2010
Sample No: 10-0774-001

Date Collected: 03/05/10
Time Collected: 8:15
Date Received: 03/05/10
Date Reported: 03/12/10

Analyte	Result	R.L.	Units	Flags
Total Metals Method: 6020A Preparation Method 3010A Analysis Date: 03/12/10 Preparation Date: 03/09/10				
Iron	11.8	0.01	mg/L	
Lead	< 0.002	0.002	mg/L	
Manganese	0.343	0.001	mg/L	
Nickel	0.021	0.001	mg/L	
Selenium	< 0.002	0.002	mg/L	
Silver	< 0.001	0.001	mg/L	
Zinc	0.006	0.005	mg/L	
Total Metals Method: 7470A				
Mercury	< 0.0005	0.0005	mg/L	
Sulfate Method: 4500S04,E				
Sulfate	36	15	mg/L	
BOD, 5 Day Method: 5210B				
BOD, 5 Day	19	1	mg/L	
Total Dissolved Solids Method: 2540C				
Total Dissolved Solids	1,890	10	mg/L	
Total Suspended Solids Method: 2540D				
Total Suspended Solids	39	1	mg/L	



Page _____ of _____ pgs

First Environmental Laboratories
1600 Shore Road, Suite D
Naperville, Illinois 60563
Phone: (630) 778-1200 • Fax: (630) 778-1233
E-mail: firstinfo@firstenv.com
IEPA Certification #130392

Street Address: 3615 S. Main Place

City: CHARLOTTE STAM IL 60188 State: IL Zip: 60188

Phone: _____ Fax: _____ e-mail: _____

Send Report To: Mr. H. H. H. H. H.

Sampled By: Dave Harris

INVOICE
FED PAGE
Pete Bergman

Project I.D.: 53152
P.O. #: _____

Matrix Codes: S = Soil W = Water O = Other

[illegible]

FOR LAB USE ONLY:

Cooler Temperature: 0.1-5°C Yes___ No. ___ °C

Received within 6 hrs. of collection: _____

Ice Present: Yes___ No___

Sample Refrigerated: Yes X No

Refrigerator Temperature: 4 °C

5035 Vials Frozen: Yes___ No___

Freezer Temperature: _____ °C

Containers Received Preserved: ☐ Yes ☐ No

Need to meet: IL, TACO ☐ IN, RISC ☐

Notes and Special Instructions:

Relinquished By: [Signature] Date/Time:

Date/Time 5/15/10 70

Received By:

Date/Time 5/10/00

Relinquished By: _____ Date/Time: _____

Received By:

Date/Time _____

Rev. 9-08

TSC # L - 53,152

Mallard North Landfill - Leachate Sampling and Analysis

Quarterly Leachate Analysis Parameters

Each Quarter:

Arsenic -
Barium -
Boron -
Cadmium -
Chloride -
Chromium (hexavalent) \pm
Chromium (trivalent) \pm
Copper -
Cyanide \pm
Iron (total) -
Lead -
Manganese -
Mercury \pm
Nickel -
pH \pm
Phenols \pm
Selenium -
Silver -
Sulfate \pm
Zinc -
BOD5 \pm
COD \pm
Oil & Grease \pm
Ammonia (as N) \pm
Total Dissolved Solids \pm
Total Suspended Solids \pm

Semi-Annual:

Organic Toxic Pollutants (as defined in 40 CFR 122)

- Volatiles
- Acid Compounds
- Base/Neutrals
- Pesticides

Note: Test methods as described in 40 CFR 136 shall be utilized for analysis.



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IL ELAP / NELAC Accreditation # 100292

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June 28, 2010

Mr. Dave Hurst
TESTING SERVICE CORP.
360 So. Main Place
Carol Stream, IL 60188

Project ID: 61102
First Environmental File ID: 10-2115
Date Received: May 28, 2010

Dear Mr. Dave Hurst:

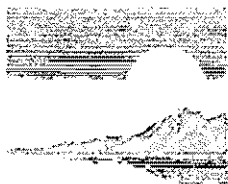
The above referenced project was analyzed as directed on the enclosed chain of custody record.

All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our accreditation number is 100292 and our current certificate is number 002468: effective 02/23/2010 through 02/28/2011.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200 or neal@firstenv.com.

Sincerely,

Neal Cleghorn
Project Manager



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Case Narrative

TESTING SERVICE CORP.

Project ID: 61102

First Environmental File ID: 10-2115

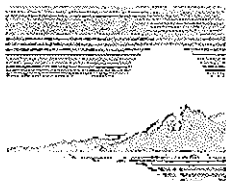
Date Received: May 28, 2010

Flag	Description	Flag	Description
<	Analyte not detected at or above the reporting limit.	L+	LCS recovery outside control limits; high bias.
B	Analyte detected in associated method blank.	L-	LCS recovery outside control limits; low bias.
C	Identification confirmed by GC/MS.	M	MS recovery outside control limits; LCS acceptable.
D	Surrogates diluted out; recovery not available.	M+	MS recovery outside control limits high bias; LCS acceptable.
E	Estimated result; concentration exceeds calibration range.	M-	MS recovery outside control limits low bias; LCS acceptable.
F	Field measurement.	N	Analyte is not part of our NELAC accreditation.
		ND	Analyte was not detected using a library search routine; No calibration standard was analyzed.
G	Surrogate recovery outside control limits; matrix effect.	P	Chemical preservation pH adjusted in lab.
H	Analysis or extraction holding time exceeded.	Q	The analyte was determined by a GC/MS database search.
J	Estimated result; concentration is less than calib range.	S	Analyte was sub-contracted to another laboratory for analysis.
K	RPD outside control limits.	T	Sample temperature upon receipt exceeded 0-6°C
RL	Routine Reporting Limit (Lowest amount that can be detected when routine weights/volumes are used without dilution.)	W	Reporting limit elevated due to sample matrix.

All quality control criteria, as outlined in the methods, have been met except as noted below or on the following analytical report.

Sample Batch Comments:

Sample acceptance criteria were met.



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Analytical Report

Client: TESTING SERVICE CORP.

Date Collected: 05/28/10

Project ID: 61102

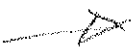
Time Collected: 13:30

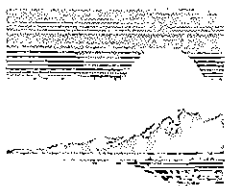
Sample ID: EWL-2, 2Q, 2010

Date Received: 05/28/10

Sample No: 10-2115-001

Date Reported: 06/28/10

Analyte	Result	R.L.	Units	Date Analyzed	Method	Flag
Ammonia (as N)	164	0.10	mg/L	06/09/10	350.1R2.0	
 COD	250	10	mg/L	06/07/10	5220D	
Cyanide, Total	< 0.005	0.005	mg/L	06/08/10	335.4R1.0	
Oil & Grease	< 1	1	mg/L	06/04/10	1664A	
pH @ 25°C	7.35		Units	05/28/10 16:30	4500H+,B	
Phosphorus (as P)	0.02	0.01	mg/L	06/08/10	4500P,B,E	
Phenols	0.014	0.010	mg/L	06/02/10	420.4R1.0	



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Analytical Report

Client: TESTING SERVICE CORP.

Date Collected: 05/28/10

Project ID: 61102

Time Collected: 13:30

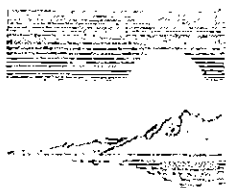
Sample ID: EWL-2, 2Q, 2010

Date Received: 05/28/10

Sample No: 10-2115-001

Date Reported: 06/28/10

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 624		
Analysis Date: 06/02/10				
Acrolein	< 100	100	ug/L	
Acrylonitrile	< 100	100	ug/L	
Benzene	6.5	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	28.3	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	14.1	10.0	ug/L	
2-Chloroethyl vinyl ether	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,2-Dichlorobenzene	< 5.0	5.0	ug/L	
1,3-Dichlorobenzene	< 5.0	5.0	ug/L	
1,4-Dichlorobenzene	9.4	5.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 1.0	1.0	ug/L	
trans-1,2-Dichloroethene	< 1.0	1.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 5.0	5.0	ug/L	
trans-1,3-Dichloropropene	< 5.0	5.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	



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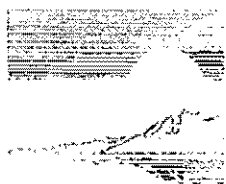
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Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 61102
Sample ID: EWL-2, 2Q, 2010
Sample No: 10-2115-001

Date Collected: 05/28/10
Time Collected: 13:30
Date Received: 05/28/10
Date Reported: 06/28/10

Analyte	Result	R.L.	Units	Flags
Semi-Volatile Compounds		Preparation Method 625W		
Analysis Date: 06/03/10		Preparation Date: 06/02/10		
Acenaphthene	< 10	10	ug/L	
Acenaphthylene	< 10	10	ug/L	
Anthracene	< 10	10	ug/L	
Benzidine	< 10	10	ug/L	
Benzo(a)anthracene	< 10	10	ug/L	
Benzo(a)pyrene	< 10	10	ug/L	
Benzo(b)fluoranthene	< 10	10	ug/L	
Benzo(k)fluoranthene	< 10	10	ug/L	
Benzo(ghi)Perylene	< 10	10	ug/L	
bis(2-Chloroethoxy)methane	< 10	10	ug/L	
bis(2-Chloroethyl)ether	< 10	10	ug/L	
bis(2-Chloroisopropyl)ether	< 10	10	ug/L	
bis(2-Ethylhexyl)phthalate	< 5	5	ug/L	
4-Bromophenyl phenyl ether	< 10	10	ug/L	
Butyl benzyl phthalate	< 10	10	ug/L	
4-Chloro-3-methylphenol	< 20	20	ug/L	
2-Chloronaphthalene	< 10	10	ug/L	
2-Chlorophenol	< 10	10	ug/L	
4-Chlorophenyl phenyl ether	< 10	10	ug/L	
Chrysene	< 10	10	ug/L	
Di-n-butyl phthalate	< 10	10	ug/L	
Di-n-octylphthalate	< 10	10	ug/L	
Dibenzo(a,h)anthracene	< 10	10	ug/L	
3,3'-Dichlorobenzidine	< 20	20	ug/L	
2,4-Dichlorophenol	< 10	10	ug/L	
Diethyl phthalate	< 10	10	ug/L	
2,4-Dimethylphenol	< 10	10	ug/L	
Dimethyl phthalate	< 10	10	ug/L	
4,6-Dinitro-o-Cresol	< 50	50	ug/L	
2,4-Dinitrophenol	< 10	10	ug/L	
2,4-Dinitrotoluene	< 10	10	ug/L	
2,6-Dinitrotoluene	< 10	10	ug/L	
1,2-Diphenylhydrazine (as Azobenzene)	< 10	10	ug/L	
Fluoranthene	< 10	10	ug/L	
Fluorene	< 10	10	ug/L	
Hexachlorobenzene	< 10	10	ug/L	



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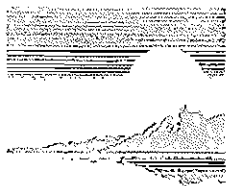
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Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 61102
Sample ID: EWL-2, 2Q, 2010
Sample No: 10-2115-001

Date Collected: 05/28/10
Time Collected: 13:30
Date Received: 05/28/10
Date Reported: 06/28/10

Analyte	Result	R.L.	Units	Flags
Semi-Volatile Compounds				
Method: 625		Preparation Method 625W		
Analysis Date: 06/03/10		Preparation Date: 06/02/10		
Hexachlorobutadiene	< 10	10	ug/L	
Hexachlorocyclopentadiene	< 10	10	ug/L	
Hexachloroethane	< 5	5	ug/L	
Indeno(1,2,3-cd)pyrene	< 10	10	ug/L	
Isophorone	< 10	10	ug/L	
Naphthalene	< 10	10	ug/L	
Nitrobenzene	< 10	10	ug/L	
2-Nitrophenol	< 10	10	ug/L	
4-Nitrophenol	< 50	50	ug/L	
n-Nitrosodi-n-propylamine	< 10	10	ug/L	
n-Nitrosodimethylamine	< 10	10	ug/L	
n-Nitrosodiphenylamine	< 10	10	ug/L	
Pentachlorophenol	< 10	10	ug/L	
Phenanthrene	< 10	10	ug/L	
Phenol	< 10	10	ug/L	
Pyrene	< 10	10	ug/L	
1,2,4-Trichlorobenzene	< 10	10	ug/L	
2,4,6-Trichlorophenol	< 10	10	ug/L	
Pesticides/PCBs				
Method: 608		Preparation Method 608W		
Analysis Date: 06/07/10		Preparation Date: 06/04/10		
Aldrin	< 0.05	0.05	ug/L	
Aroclor 1016	< 0.50	0.50	ug/L	
Aroclor 1221	< 0.50	0.50	ug/L	
Aroclor 1232	< 0.50	0.50	ug/L	
Aroclor 1242	< 0.50	0.50	ug/L	
Aroclor 1248	< 0.50	0.50	ug/L	
Aroclor 1254	< 0.50	0.50	ug/L	
Aroclor 1260	< 0.50	0.50	ug/L	
alpha-BHC	< 0.05	0.05	ug/L	
beta-BHC	< 0.05	0.05	ug/L	
delta-BHC	< 0.05	0.05	ug/L	
gamma-BHC (Lindane)	< 0.05	0.05	ug/L	
alpha-Chlordane	< 0.50	0.50	ug/L	
gamma-Chlordane	< 0.50	0.50	ug/L	
Chlordane (technical)	< 0.50	0.50	ug/L	
4,4'-DDD	< 0.10	0.10	ug/L	



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Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 61102
Sample ID: EWL-2, 2Q, 2010
Sample No: 10-2115-001

Date Collected: 05/28/10
Time Collected: 13:30
Date Received: 05/28/10
Date Reported: 06/28/10

Analyte	Result	R.L.	Units	Flags
Pesticides/PCBs				
Method: 608		Preparation Method 608W		
Analysis Date: 06/07/10		Preparation Date: 06/04/10		
4,4'-DDE	< 0.10	0.10	ug/L	
4,4'-DDT	< 0.10	0.10	ug/L	
Dieldrin	< 0.10	0.10	ug/L	
Endosulfan I	< 0.05	0.05	ug/L	
Endosulfan II	< 0.10	0.10	ug/L	
Endosulfan sulfate	< 0.10	0.10	ug/L	
Endrin	< 0.10	0.10	ug/L	
Endrin aldehyde	< 0.10	0.10	ug/L	
Endrin ketone	< 0.10	0.10	ug/L	
Heptachlor	< 0.05	0.05	ug/L	
Heptachlor epoxide	< 0.05	0.05	ug/L	
Methoxychlor	< 0.50	0.50	ug/L	
Toxaphene	< 1.0	1.0	ug/L	
Total Metals				
Method: 200.8R5.4		Preparation Method 200.7W		
Analysis Date: 06/05/10		Preparation Date: 06/01/10		
Arsenic	< 0.002	0.002	mg/L	
Barium	0.355	0.001	mg/L	
Cadmium	< 0.001	0.001	mg/L	
Chromium	0.003	0.001	mg/L	
Copper	< 0.001	0.001	mg/L	
Iron	11.4	0.01	mg/L	
Lead	< 0.002	0.002	mg/L	
Manganese	0.429	0.001	mg/L	
Nickel	0.020	0.001	mg/L	
Zinc	0.011	0.005	mg/L	
Total Metals				
Method: 245.1R3.0				
Analysis Date: 06/04/10				
Mercury	< 0.0005	0.0005	mg/L	
Dioxin, Low Resolution				
Method: 8280				
Analysis Date: 06/23/10				
Dioxin	Attached			S



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June 10, 2010

Mr. Dave Hurst
TESTING SERVICE CORP.
360 So. Main Place
Carol Stream, IL 60188

Project ID: 53152
First Environmental File ID: 10-2114
Date Received: May 28, 2010

Dear Mr. Dave Hurst:

The above referenced project was analyzed as directed on the enclosed chain of custody record.

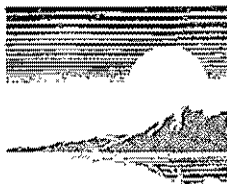
All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our accreditation number is 100292 and our current certificate is number 002468: effective 02/23/10 through 02/28/11.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200 or stan@firstenv.com.

Sincerely,



Stan Zaworski
Project Manager



Case Narrative

TESTING SERVICE CORP.

Project ID: 53152

First Environmental File ID: 10-2114

Date Received: May 28, 2010

Flag	Description	Flag	Description
<	Analyte not detected at or above the reporting limit.	L+	LCS recovery outside control limits; high bias.
B	Analyte detected in associated method blank.	L-	LCS recovery outside control limits; low bias.
C	Identification confirmed by GC/MS.	M	MS recovery outside control limits; LCS acceptable.
D	Surrogates diluted out; recovery not available.	M+	MS recovery outside control limits high bias; LCS acceptable.
E	Estimated result; concentration exceeds calibration range.	M-	MS recovery outside control limits low bias; LCS acceptable.
F	Field measurement.	N	Analyte is not part of our NELAC accreditation.
		ND	Analyte was not detected using a library search routine; No calibration standard was analyzed.
G	Surrogate recovery outside control limits; matrix effect.	P	Chemical preservation pH adjusted in lab.
H	Analysis or extraction holding time exceeded.	Q	The analyte was determined by a GC/MS database search.
J	Estimated result; concentration is less than calib range.	S	Analyte was sub-contracted to another laboratory for analysis.
K	RPD outside control limits.	T	Sample temperature upon receipt exceeded 0-6°C
RL	Routine Reporting Limit (Lowest amount that can be detected when routine weights/volumes are used without dilution.)	W	Reporting limit elevated due to sample matrix.

All quality control criteria, as outlined in the methods, have been met except as noted below or on the following analytical report.

Sample Batch Comments:

Sample acceptance criteria were met.



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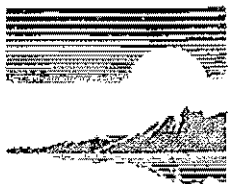
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Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 53152
Sample ID: EWL-2, 2010
Sample No: 10-2114-001

Date Collected: 05/28/10
Time Collected: 13:45
Date Received: 05/28/10
Date Reported: 06/10/10

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 5030B/8260B		
Analysis Date: 06/03/10				
Acetone	< 100	100	ug/L	
Benzene	6.2	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	27.4	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	16.1	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	6.9	5.0	ug/L	



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IL ELAP / NELAC Accreditation # 100292

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Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 53152
Sample ID: EWL-2, 2010
Sample No: 10-2114-001

Date Collected: 05/28/10
Time Collected: 13:45
Date Received: 05/28/10
Date Reported: 06/10/10

Analyte	Result	R.L.	Units	Flags
Semi-Volatile Compounds		Method: 8270C		
Analysis Date: 06/03/10		Preparation Method 3510C		
		Preparation Date: 06/03/10		
Acenaphthene	< 10	10	ug/L	
Acenaphthylene	< 10	10	ug/L	
Anthracene	< 10	10	ug/L	
Benzidine	< 10	10	ug/L	
Benzo(a)anthracene	< 10	10	ug/L	
Benzo(a)pyrene	< 10	10	ug/L	
Benzo(b)fluoranthene	< 10	10	ug/L	
Benzo(ghi)perylene	< 10	10	ug/L	
Benzo(k)fluoranthene	< 10	10	ug/L	
Benzoic acid	< 50	50	ug/L	
Benzyl alcohol	< 20	20	ug/L	
bis(2-Chloroethoxy)methane	< 10	10	ug/L	
bis(2-Chloroethyl)ether	< 10	10	ug/L	
bis(2-Chloroisopropyl)ether	< 10	10	ug/L	
bis(2-Ethylhexyl)phthalate	< 5	5	ug/L	
4-Bromophenyl phenyl ether	< 10	10	ug/L	
Butyl benzyl phthalate	< 10	10	ug/L	
Carbazole	< 10	10	ug/L	
4-Chloroaniline	< 10	10	ug/L	
4-Chloro-3-methylphenol	< 20	20	ug/L	
2-Chloronaphthalene	< 10	10	ug/L	
2-Chlorophenol	< 10	10	ug/L	
4-Chlorophenyl phenyl ether	< 10	10	ug/L	
Chrysene	< 10	10	ug/L	
Di-n-butyl phthalate	< 10	10	ug/L	
Di-n-octylphthalate	< 10	10	ug/L	
Dibenzo(a,h)anthracene	< 10	10	ug/L	
Dibenzofuran	< 10	10	ug/L	
1,2-Dichlorobenzene	< 10	10	ug/L	
1,3-Dichlorobenzene	< 10	10	ug/L	
1,4-Dichlorobenzene	< 10	10	ug/L	
3,3'-Dichlorobenzidine	< 20	20	ug/L	
2,4-Dichlorophenol	< 10	10	ug/L	
Diethyl phthalate	< 10	10	ug/L	
2,4-Dimethylphenol	< 10	10	ug/L	
Dimethyl phthalate	< 10	10	ug/L	



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Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 53152
Sample ID: EWL-2, 2010
Sample No: 10-2114-001

Date Collected: 05/28/10
Time Collected: 13:45
Date Received: 05/28/10
Date Reported: 06/10/10

Analyte	Result	R.L.	Units	Flags
Semi-Volatile Compounds				
Analysis Date: 06/03/10		Preparation Date: 06/03/10		
Method: 8270C		Preparation Method 3510C		
4,6-Dinitro-2-methylphenol	< 50	50	ug/L	
2,4-Dinitrophenol	< 10	10	ug/L	
2,4-Dinitrotoluene	< 10	10	ug/L	
2,6-Dinitrotoluene	< 10	10	ug/L	
Fluoranthene	< 10	10	ug/L	
Fluorene	< 10	10	ug/L	
Hexachlorobenzene	< 10	10	ug/L	
Hexachlorobutadiene	< 10	10	ug/L	
Hexachlorocyclopentadiene	< 10	10	ug/L	
Hexachloroethane	< 5	5	ug/L	
Indeno(1,2,3-cd)pyrene	< 10	10	ug/L	
Isophorone	< 10	10	ug/L	
2-Methylnaphthalene	< 10	10	ug/L	
2-Methylphenol	< 10	10	ug/L	
3 & 4-Methylphenol	< 10	10	ug/L	
Naphthalene	< 10	10	ug/L	
2-Nitroaniline	< 50	50	ug/L	
3-Nitroaniline	< 50	50	ug/L	
4-Nitroaniline	< 20	20	ug/L	
Nitrobenzene	< 10	10	ug/L	
2-Nitrophenol	< 10	10	ug/L	
4-Nitrophenol	< 50	50	ug/L	
n-Nitrosodimethylamine	< 10	10	ug/L	
n-Nitrosodi-n-propylamine	< 10	10	ug/L	
n-Nitrosodiphenylamine	< 10	10	ug/L	
Pentachlorophenol	< 10	10	ug/L	
Phenanthrene	< 10	10	ug/L	
Phenol	< 10	10	ug/L	
Pyrene	< 10	10	ug/L	
1,2,4-Trichlorobenzene	< 10	10	ug/L	
2,4,5-Trichlorophenol	< 10	10	ug/L	
2,4,6-Trichlorophenol	< 10	10	ug/L	
Pesticides				
Analysis Date: 06/07/10		Preparation Date: 06/04/10		
Method: 8081A		Preparation Method 3510C		
Aldrin	< 0.05	0.05	ug/L	
alpha-BHC	< 0.05	0.05	ug/L	



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Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 53152
Sample ID: EWL-2, 2010
Sample No: 10-2114-001

Date Collected: 05/28/10
Time Collected: 13:45
Date Received: 05/28/10
Date Reported: 06/10/10

Analyte	Result	R.L.	Units	Flags
Pesticides				
Method: 8081A		Preparation Method 3510C		
Analysis Date: 06/07/10		Preparation Date: 06/04/10		
beta-BHC	< 0.05	0.05	ug/L	
delta-BHC	< 0.05	0.05	ug/L	
gamma-BHC (Lindane)	< 0.05	0.05	ug/L	
alpha-Chlordane	< 0.50	0.50	ug/L	
gamma-Chlordane	< 0.50	0.50	ug/L	
4,4'-DDD	< 0.10	0.10	ug/L	
4,4'-DDE	< 0.10	0.10	ug/L	
4,4'-DDT	< 0.10	0.10	ug/L	
Dieldrin	< 0.10	0.10	ug/L	
Endosulfan I	< 0.05	0.05	ug/L	
Endosulfan II	< 0.10	0.10	ug/L	
Endosulfan sulfate	< 0.10	0.10	ug/L	
Endrin	< 0.10	0.10	ug/L	
Endrin aldehyde	< 0.10	0.10	ug/L	
Endrin ketone	< 0.10	0.10	ug/L	
Heptachlor	< 0.05	0.05	ug/L	
Heptachlor epoxide	< 0.05	0.05	ug/L	
Methoxychlor	< 0.50	0.50	ug/L	
Toxaphene	< 1.0	1.0	ug/L	
Ammonia (as N)				
Method: 350.1R2.0				
Analysis Date: 06/09/10				
Ammonia (as N)	160	0.10	mg/L	
BOD, 5 Day				
Method: 5210B				
Analysis Date: 05/28/10 14:30				
BOD, 5 Day	46	1	mg/L	
Chloride				
Method: 4500Cl, E				
Analysis Date: 06/08/10				
Chloride	560	5	mg/L	
Chromium, Hexavalent				
Method: 3500Cr,B				
Analysis Date: 06/01/10 13:00				
Chromium, Hexavalent	< 0.050	0.05	mg/L	
COD				
Method: 5220D				
Analysis Date: 06/07/10				
COD	247	10	mg/L	



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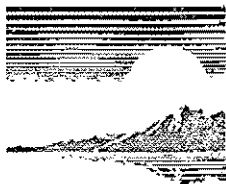
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Analytical Report

Client: TESTING SERVICE CORP.
Project ID: 53152
Sample ID: EWL-2, 2010
Sample No: 10-2114-001

Date Collected: 05/28/10
Time Collected: 13:45
Date Received: 05/28/10
Date Reported: 06/10/10

Analyte	Result	R.L.	Units	Flags
Cyanide, Total Method: 335.4R1.0				
Analysis Date: 06/08/10				
Cyanide, Total	< 0.005	0.005	mg/L	
Oil & Grease Method: 1664A				
Analysis Date: 06/03/10				
Oil & Grease	< 1	1	mg/L	
pH @ 25°C Method: 4500H+,B				
Analysis Date: 05/28/10 16:30				
pH @ 25°C	7.21		Units	
Phenols Method: 420.4R1.0				
Analysis Date: 06/02/10				
Phenols	0.014	0.010	mg/L	
Sulfate Method: 4500S04,E				
Analysis Date: 06/02/10				
Sulfate	< 15	15	mg/L	
Total Dissolved Solids Method: 2540C				
Analysis Date: 06/02/10				
Total Dissolved Solids	2,110	10	mg/L	
Total Suspended Solids Method: 2540D				
Analysis Date: 06/03/10				
Total Suspended Solids	35	1	mg/L	
Total Metals Method: 6010B Preparation Method 3010A				
Analysis Date: 06/05/10				Preparation Date: 06/01/10
Arsenic	< 0.002	0.002	mg/L	
Barium	0.338	0.001	mg/L	
Boron	1.65	0.01	mg/L	
Cadmium	< 0.001	0.001	mg/L	
Chromium	0.002	0.001	mg/L	
Copper	< 0.001	0.001	mg/L	
Iron	11.8	0.01	mg/L	
Lead	< 0.002	0.002	mg/L	
Manganese	0.398	0.001	mg/L	
Nickel	0.019	0.001	mg/L	
Selenium	< 0.002	0.002	mg/L	
Silver	< 0.001	0.001	mg/L	
Zinc	0.011	0.005	mg/L	



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Analytical Report

Client: TESTING SERVICE CORP.

Date Collected: 05/28/10

Project ID: 53152

Time Collected: 13:45

Sample ID: EWL-2, 2010

Date Received: 05/28/10

Sample No: 10-2114-001

Date Reported: 06/10/10

Analyte	Result	R.L.	Units	Flags
Chromium, trivalent Analysis Date: 06/05/10	Method: CALC			
Chromium, Trivalent	< 0.05	0.005	mg/L	
Total Metals Analysis Date: 06/04/10	Method: 7470A			
Mercury	< 0.0005	0.0005	mg/L	



Back to FPD Page 55 of 55

IEPA Certification #100292

Sampled By: [Signature]

10-21131-1171

Need to meet: IL TACO ☐ IN RISC ☐

Alum Sample Test 9-5254-00,

1515

Date/Time

TSC # L - 53,152

Mallard North Landfill- Leachate Sampling and Analysis

Quarterly Leachate Analysis Parameters

Each Quarter:

Arsenic
Barium
Boron
Cadmium
Chloride
Chromium (hexavalent)
Chromium (trivalent)
Copper
Cyanide
Iron (total)
Lead
Manganese
Mercury
Nickel
pH
Phenols
Selenium
Silver
Sulfate
Zinc
BOD5
COD
Oil & Grease
Ammonia (as N)
Total Dissolved Solids
Total Suspended Solids

Semi-Annual:

Organic Toxic Pollutants (as defined in 40 CFR 122)

- Volatiles
- Acid Compounds
- Base/Neutrals
- Pesticides

Note: Test methods as described in 40 CFR 136 shall be utilized for analysis.

ALC
5/28/10

Attachment 3
HDPE Pipe Specifications

SECTION 02618
HIGH-DENSITY POLYETHYLENE (HDPE) PIPE AND FITTINGS

PART 1. GENERAL

1.1 SECTION INCLUDES

- A. Providing High Density Polyethylene (HDPE) Pipe, fittings and appurtenances for leachate piping as indicated on Drawings.

1.2 REFERENCES

- A. ASTM D4976 – Polyethylene plastics molding and extrusion materials
- B. ASTM D3350 – Standard specification for polyethylene plastic pipe and fittings materials.
- C. ASTM D3261 – Butt fittings for HDPE pipes.
- D. ASTM D2513 – Industrial molded fittings for HDPE pipes.
- E. ASTM D2683 – Socket fittings for HDPE pipes

1.3 QUALITY CONTROL REQUIREMENTS

- A. Prior to delivery of piping to the site, the Piping Manufacturer will provide the following information:
 - 1. Resin supplier's name, location of supplier's production plant(s), and the resin brand name and product number.
 - 2. Test results obtained by the piping manufacturer and/or the piping manufacturer's testing laboratories to document the quality of the resin used in manufacturing the piping.
 - 3. Quality Control Plan that the piping manufacturer will be using for the pipe being supplied.
- B. The Piping Manufacturer will provide certification, based on test results, that:
 - 1. Pipe supplied meets all Material Specifications in Section 02618 2.2.
 - 2. Finished pipe meets the cell classification of 345434C according to the provisions of ASTM D3350
 - 3. Finished pipe has the SDR value specified.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Each bundle of pipe prepared for shipment by the Piping Fabricator will be marked with the following information:
 - 1. Nominal size
 - 2. Dimension ratio

3. Pressure rating
 4. Type (manufacturer)
 5. Material classification
- B. Protect pipe during shipment from excessive heat or cold, puncture, or other damaging or deleterious conditions.
 - C. Protect pipe on-site from long-term ultraviolet exposure, the elements, weather changes, and construction activities.
 - D. Store materials in areas that are safe from construction activities.

1.5 SUBMITTALS

- A. Provide data on pipe materials, pipe fittings, and accessories.

PART 2. PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS/SUPPLIERS

- A. Pipe and Valves:
 1. Plastic Fusion Fabricators
3455 Stanwood Blvd.
Huntsville, AL 35811
800/356/1480
 2. Michigan Supply Company
631 Park Place
Lansing, MI 48901
517/484/6444
 3. Isco Industries
926 Baxter Avenue
Louisville, KY 40204
800/345/4726
 4. Forrer Supply Company, Inc.
W194 N11811 McCormick Drive
Germantown, WI 53022
800/255/1030

2.2 MATERIALS

- A. Only new and undamaged materials shall be used.
- B. HDPE pipe and fittings shall be made from high-density, extra high molecular weight material with a broad range molecular weight distribution designated as PE 3408 with an ASTM D3350 cell classification number of 345434C.
- C. SDR 17 HDPE piping: 2, 3, 4, 6, 8, and 10-inch diameter, complete with bends, fittings, and appurtenances, as shown on the Drawings.

- D. Joints: Heat fusion process according to manufacturer's specifications.

PART 3. EXECUTION

3.1 INSPECTION

- A. Inspect pipe, fittings, and other appurtenances before installation to verify quality of material.
- B. Bends to be prefabricated in the field, prefabricated, or made by bending straight sections of pipe.

3.2 PREPARATION

- A. Ream pipe and tube ends. Remove burrs.
- B. Remove dirt and foreign material, inside and outside, from pipe and fitting materials before assembly.
- C. Make straight field cuts without chipping or cracking the pipe.

3.3 BEDDING

- A. As shown on the Drawings.

3.4 INSTALLATION

- A. Pipe seams: Make heat fusion joints in accordance with the manufacturer's specifications.
- B. Install pipe and fittings to the line and grade specified on the Drawings.
- C. Lay pipe from the low end toward the high point. Provide continuous smooth invert.
- D. Pipe placement will not be performed in the presence of excessive moisture or when the underlying prepared surface has deteriorated since previous acceptance.
- E. Maximum allowable tolerance for grade is 0.10 foot.
- F. Install bedding and backfill material over pipe as designated in the drawings with care to avoid damage to pipe. Minimize traffic and turning of traffic over pipe.

3.5 FIELD QUALITY CONTROL

- A. ENGINEER to observe pipe subgrade installation, and pipe installation prior to backfilling.
- B. When fusing joints and fittings, follow supplied manufacturer's directions and procedures for heat jointing pipes and fittings.
- C. CONTRACTOR shall air pressure test all solid-wall HDPE leachate piping in the presence of the ENGINEER.
- D. Gravity pipe pressure testing shall consist of applying a pressure of 5.5 psig for a minimum of 30 minutes with less than a 5 percent decrease in pressure.

- E. Test force main pipe at a pressure of 40 psig for a minimum of 30 minutes with less than a 5 percent decrease in pressure.
- F. Pipe inverts and coordinate locations will be surveyed at 50-foot intervals and at all tee connection locations.
- G. Flush pipe with sewer cleaning equipment when construction is completed, prior to final acceptance.

END OF SECTION

Attachment 4
Lift Station Calculations



COMPUTATION SHEET

SHEET 1 OF 3

744 Heartland Trail (53717-8923) P. O. Box 8923 (53708-8923) Madison, WI (608) 831-4444 FAX: (608) 831-3334 VOICE: (608) 831-1989

PROJECT/PROPOSAL NAME	PREPARED		CHECKED		PROJECT/PROPOSAL NO.
	By:	Date:	By:	Date:	
Mallard North Landfill -- Leachate Force Main Connection	J. Kucher	12/7/10	JRS	12/8/10	01793.04.001

LEACHATE LIFT STATION DESIGN

Purpose:

To collect leachate from the Mallard North Landfill and pump the leachate to the Village of Hanover Park sanitary sewer forcemain.

Assumptions:

- Lift station to replace existing above grade frac tank.
- Leachate enters the concrete lift station from the three pneumatic leachate pumps through a 4-inch-diameter (SDR 17) HDPE pipe (encased with a 8-inch-diameter HDPE [SDR 17] pipe outside of landfill limits) at approximately 12 to 20 gpm.
- Design flow from lift station to HP FM is 40 to 50 gpm at approximately 55 feet of head.
- Lift station to include two submersible electric pumps; alternating, controlled by float switches; electrical control panel above-grade with SCADA system.
- No solids present in leachate, little or no grit.
- 4" Quick connect pipe at vault next to lift station for tank truck loadout.
- Existing forcemain is 16-inch-diameter ductile iron pipe (D.I.P.) Thickness Class 52; approximately located at Station 140+00; maximum pressure is 19.8 psi (or 45.7 feet).
- Discharge metered by non-resettable flow meter.
- Dual encased piping secured to western bridge beam. Penetrate bridge abutments through wooden area. Heat trace and insulate piping.
- Above-grade electrical control panel will communicate by radio with existing Northwest Flare panel.
- Confined space entry required for lift station.



COMPUTATION SHEET

SHEET 2 OF 3

744 Heartland Trail (53717-8923) P. O. Box 8923 (53708-8923) Madison, WI (608) 831-4444 FAX: (608) 831-3334 VOICE: (608) 831-1989

PROJECT/PROPOSAL NAME	PREPARED		CHECKED		PROJECT/PROPOSAL NO
	By:	Date:	By:	Date:	
Mallard North Landfill – Leachate Force Main Connection	J. Kucher	12/7/10	JRS	12/8/10	01793.04.001

Methodology:

Check Depth / Volume Relationship

6 foot diameter wet well,

$$\text{Volume} = \pi(3)^2 1 \text{ ft} (7.48 \text{ gal/cf}) = 211 \text{ gal/vertical foot}$$

DEPTH* (feet)	OPERATIONAL VOLUME (gal)	FLOW (gpm)	PUMP RUN TIME (V/gpm)
1	211	40	5.3 min.
2	422	40	10.6 min.
3	633	40	15.8 min.
4	844	40	21.1 min.
6	1,266	50	25.3 min.

Notes:

* Depth above dead storage (pump height or approximately 24 inches).

From pump data, Grundfos model 40S10-3, 1.03 hp, single phase, 4 inch diameter, and system head curve, the pump will operate at approximately 40 gpm at 61 feet of head. Assume 3 vertical feet (633 gallons) between pump on and pump off floats. At 40 gpm, the wet well will be drained to the pump off float in 21.1 minutes (longer if the pneumatic pumps are operating).

Check Buoyant Stability

Assumptions:

- Depth to water = 0 ft bgs.
- $\gamma_{\text{concrete}} = 150 \text{ lb/ft}^3$, $\gamma_{\text{water}} = 62.4 \text{ lb/ft}^3$, $\gamma_{\text{soil}} = 120 \text{ pcf}$.
- Skin friction not included.
- A FS = 1.3 is acceptable for resistance to uplift.
- Manhole is empty, weight of pump, etc., not included.
- Lift station is a 6 foot internal diameter concrete structure.
- The lift station manhole is stable when the structure weight is greater than the weight of water displaced.



COMPUTATION SHEET

SHEET 3 OF 3

744 Heartland Trail (53717-8923) P. O. Box 8923 (53708-8923) Madison, WI (608) 831-4444 FAX: (608) 831-3334 VOICE: (608) 831-1989

PROJECT/PROPOSAL NAME	PREPARED		CHECKED		PROJECT/PROPOSAL NO.
	By:	Date:	By:	Date:	
Mallard North Landfill – Leachate Force Main Connection	J. Kucher	12/7/10	JRS	12/8/10	01793.04.001

Buoyant Force

Weight of water displaced,

$$\begin{aligned} F_{\text{buoyant}} &= 62.4 \text{ \#/cf } (\pi(3)^2)(773-762.5) \\ &= 18,500 \text{ lbs.} \end{aligned}$$

Ballast Force

Manhole weight,

$$= \pi(0.5) (774-763) (150) = 15,551 \text{ lbs.}$$

Soil above 2 foot wide perimeter wings at a 6 foot depth

$$\begin{aligned} &= 6 \text{ ft } (\pi(6) (2') (120-62.4) \\ &= 13,028 \text{ lbs.} \end{aligned}$$

Check Factor of Safety

$$F.S. = \frac{\text{ballast force}}{\text{buoyant force}} = \frac{15,551+13,028}{18,500} = \underline{1.5} \text{ Therefore ok}$$

1^12/8/201012/8/2010+1^1

PROJECT NAME: Mallard North Lift Station		STATIC HEAD: 55	
PROJECT NO: 6809.04.005		LOW FLOW: 20	
DATE: 12/06/10		INCREMENT: 10	
BY: J. Kucher			
CHECKED: JRS		file P:\6809\04\leachate fm\calculations\lck lift station model.xls	
Segment No.		1	
Pipe Material		PVC	
"C" Value		150	
Inside Diameter		2.000	
DESCRIPTION	L/d	QTY.	EQU. LENGTH
Horizontal run	1	65	65
Vertical Run	1	55	55
Anti-siphon		0	0
Valves			
Gate	13	1	2
Butterfly	20	1	3
Check (swing)	135	0	0
Check (ball)	150	2	50
Elbows			
Standard 90	30	3	15
Standard 45	16	0	0
Standard 22 1/2	10	0	0
Standard 11 1/4	6	0	0
Long radius 90	20	0	0
Tees			
Thru flow	20	0	0
Branch flow	60	1	10
Miscellaneous	meter	1	2

19.8 psig (45.7 ft) +9.6 ft (vertical lift) =

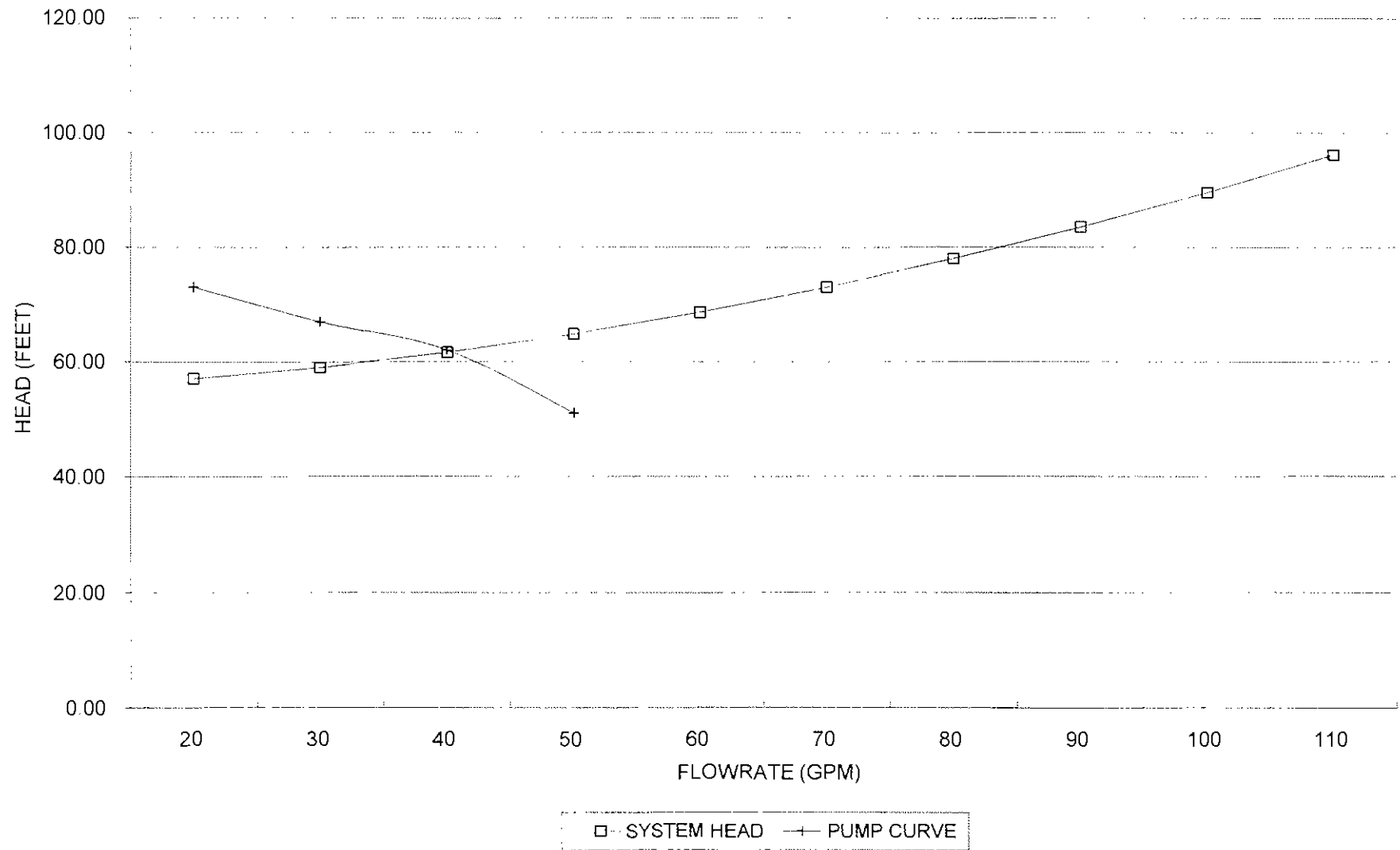
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Truck:

14.5 ft (pump to ground surf) + 13.5 ft (

TOTAL EQUIVALENT LENGTHS			203			0			
STATION DISCHARGE (GPM)	STATIC HEAD	SEGMENT NO. 1		SEGMENT NO. 2		TOTAL SYSTEM HEAD	PUMP HEAD 4" Grundfos Submersible 40S10-3		
		VELOCITY	DYNAMIC HEAD	VELOCITY	DYNAMIC HEAD				
20	55	2.04	1.74	0.00	0.00	57.04	73		
30	55	3.06	3.69	0.00	0.00	58.99	67		
40	55	4.08	6.29	0.00	0.00	61.59	62		
50	55	5.11	9.50	0.00	0.00	64.80	51		
60	55	6.13	13.31	0.00	0.00	68.61			
70	55	7.15	17.71	0.00	0.00	73.01			
80	55	8.17	22.67	0.00	0.00	77.97			
90	55	9.19	28.19	0.00	0.00	83.49			
100	55	10.21	34.25	0.00	0.00	89.55			
110	55	11.23	40.86	0.00	0.00	96.16			

MALLARD NORTH LANDFILL
LEACHATE LIFT STATION



GRUNDFOS®



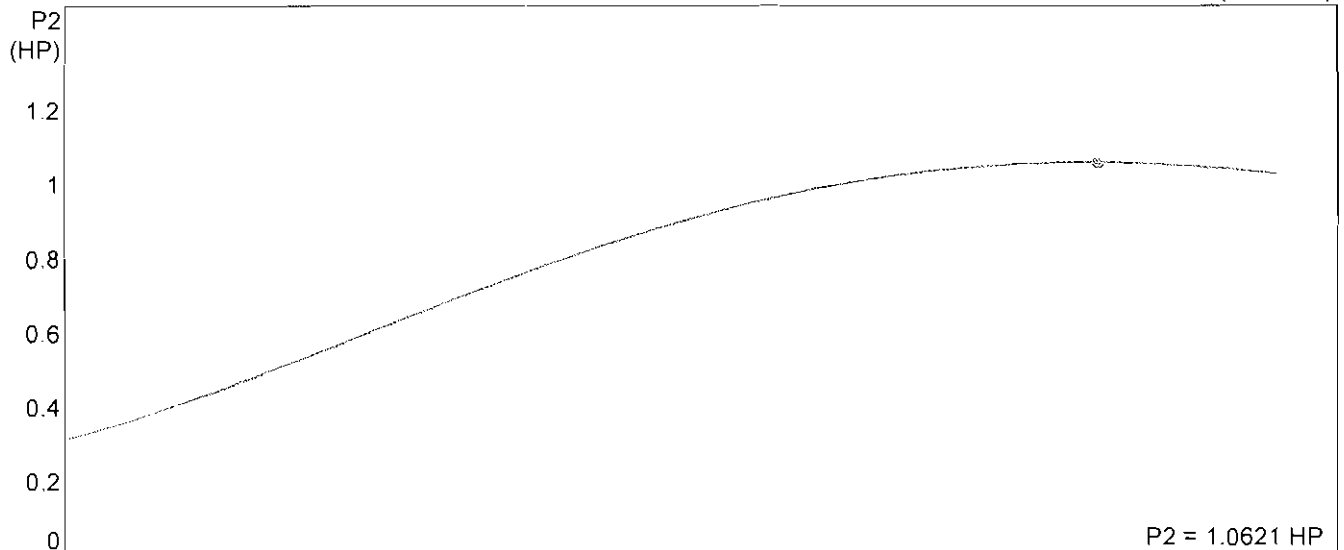
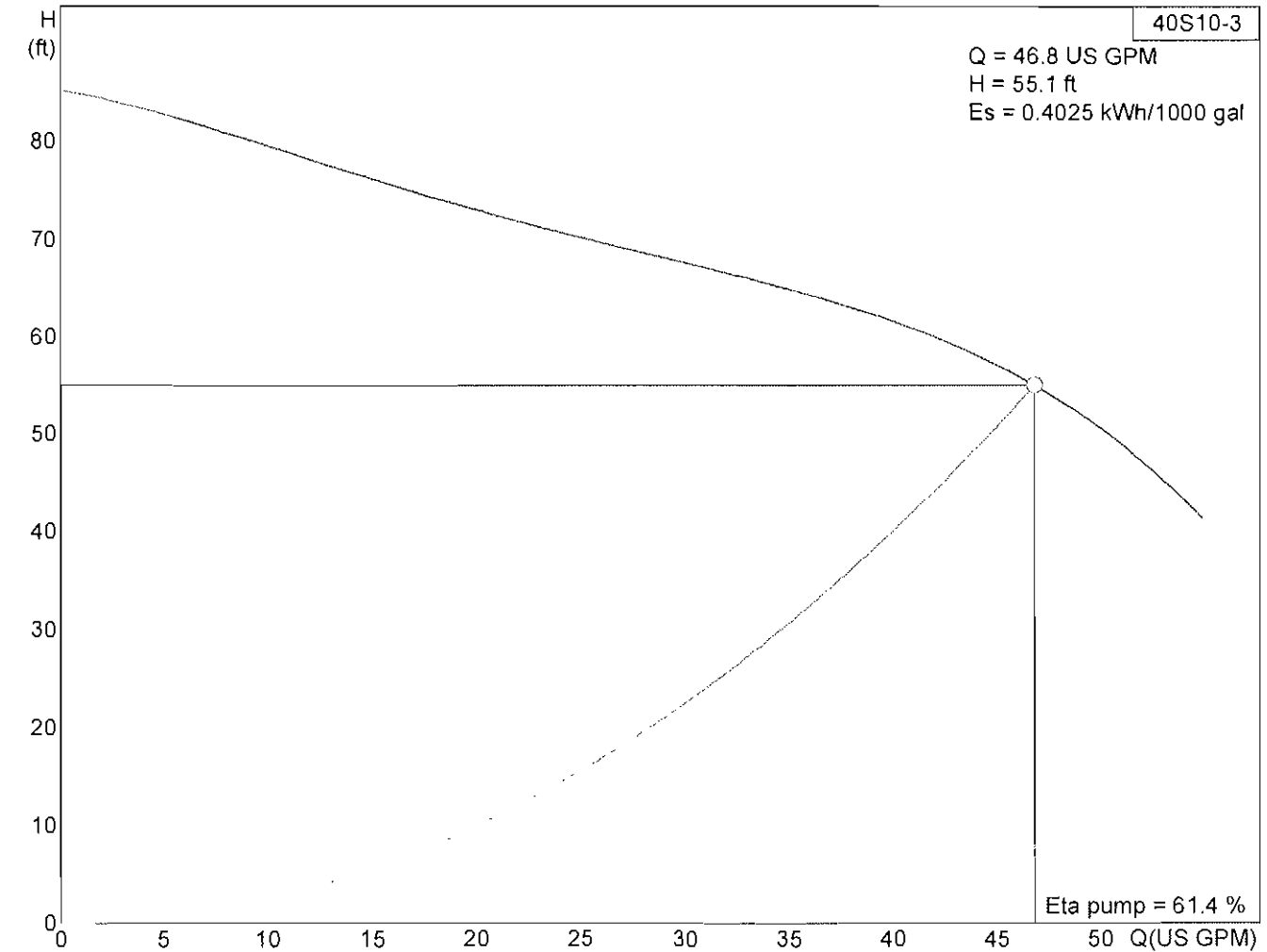
Company name: DUFF CO.
Created by: PAUL ROSEN
Phone: 610-275-4453
Fax: 610-279-6299
Date: 12/07/2010

11890003 40S10-3

40S10-3

Q = 46.8 US GPM
H = 55.1 ft
Es = 0.4025 kWh/1000 gal

Eta pump = 61.4 %





Hanover Park, Illinois

40527
JOB NO.

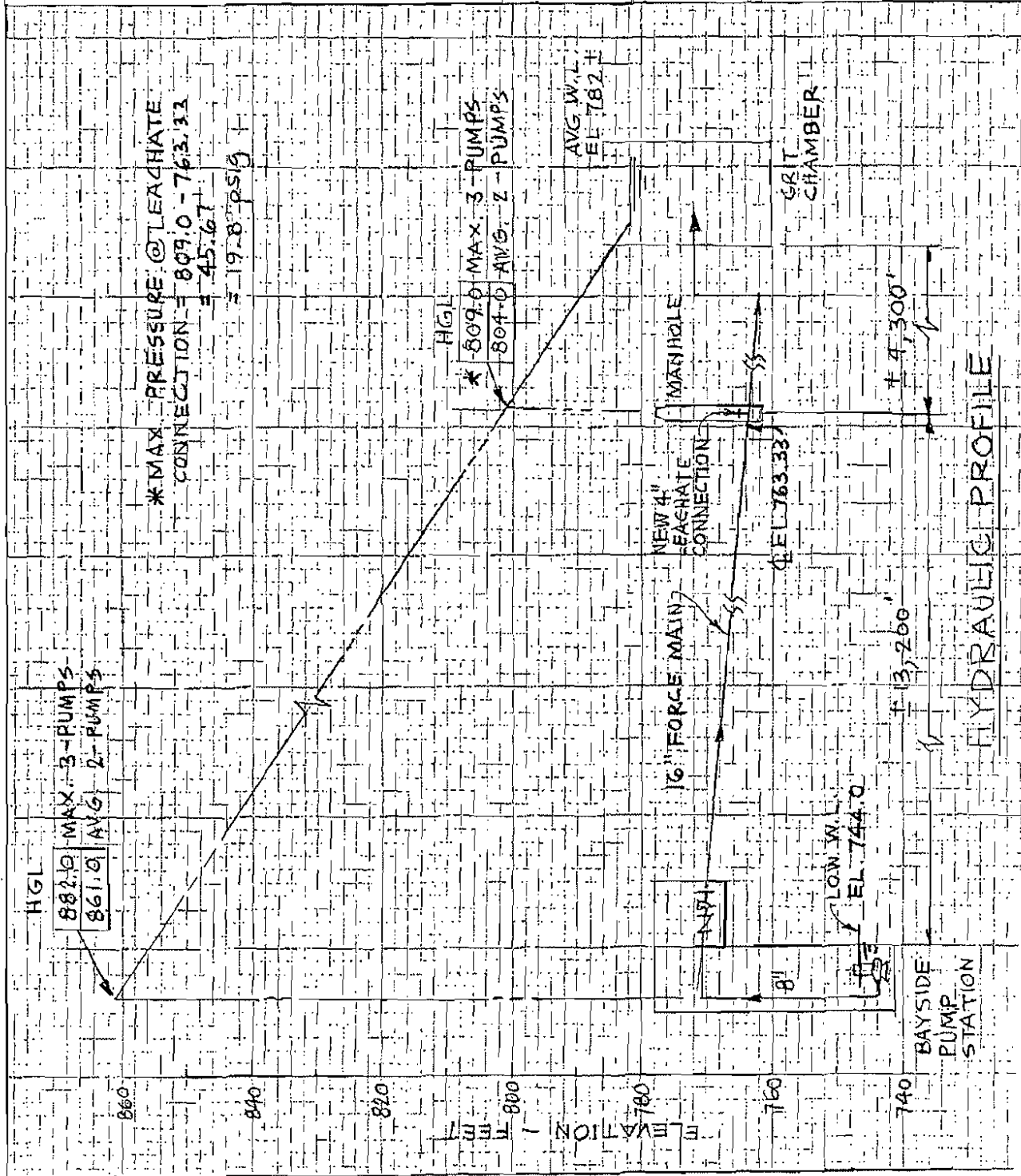
Mallard Lake Leachate Connection

SHEET

RJG
DESIGNED11/05/04
DATE

CHECKED

DATE

HANOVER PARK
FORCE MAIN

This is How it Works

The AutoPump is a submersible compressed air-driven pump which fills and empties automatically. It also controls the fluid level in a well automatically. The pump fills (see Figure 1) when fluids enter either the top or bottom check valve. Air in the pump chamber exits through the exhaust valve as the fluid fills the pump. The float inside the pump is carried upwards by the fluids rising in the casing until it pushes against a stop on the control rod, forcing the valve mechanism to switch to the discharge mode.

The switching of the valve causes the exhaust valve to close and the air inlet valve to open. This causes the pump to empty (see Figure 3) by allowing compressed air to enter the pump. This pressure on the fluid closes the inlet check valve and forces the fluids up the discharge tube and out of the pump through the outlet check valve. As the fluid level falls in the pump, the float moves downwards until it pushes against the lower stop on the control rod, forcing the valve mechanism to switch to the fill mode. The outlet check valve closes and prevents discharged fluids from re-entering the pump. The filling and discharging of the pump continues automatically.

Note: The figures shown here are simplified schematics.

Major AutoPump Features

- The AutoPump System is small and lightweight and can be easily moved from site to site, allowing quick response to changing conditions.
- The hoses are color coded and all the fittings are different so only the proper connections can be made.
- Rugged construction ensures long system life, even under harsh conditions.
- The entire system is pneumatically powered with no electrical components, thus avoiding sparks in control power and sensing devices.
- Durable stainless steel air valves that can pass liquids as viscous as 90 weight gear oil without fouling. The air valves can handle reverse flow and submergence for long periods of time. Unlike pumps with bubble or bleed hoses, there are no problems with start up, clogging, and failure under these difficult conditions when using the AP-4. This results in less downtime and lower training, maintenance, and repair costs.

Chapter 2: Overview

The AutoPump® fills and empties automatically, and is very easy to install, use, and maintain.

The AutoPump is a pneumatic fluid extraction pump that pumps in pulses. It handles any liquid which flows freely into the pump and is compatible with the component materials and with the connecting hoses. The AP-4 is intended for vertical operation in well casings with a 3.75-inch or greater internal diameter. It can pump particles up to 1/8-inch in diameter.

The AutoPump is very versatile and available in a wide range of lengths, valve arrangements, and materials of construction to meet particular site specifications.

Equipment will vary by application and site specifications. (See Chapter 3)

General Specifications

Pump Diameter	3.50 inch	88.9 mm
Pressure Range	5 - 120 psi	0.4 - 8.5 Kg/cm ²
High Pressure Option	5 - 200 psi	0.4 - 14.1 Kg/cm ²
Flow Ranges	0-16 gallons per minute	0-60 liters per minute

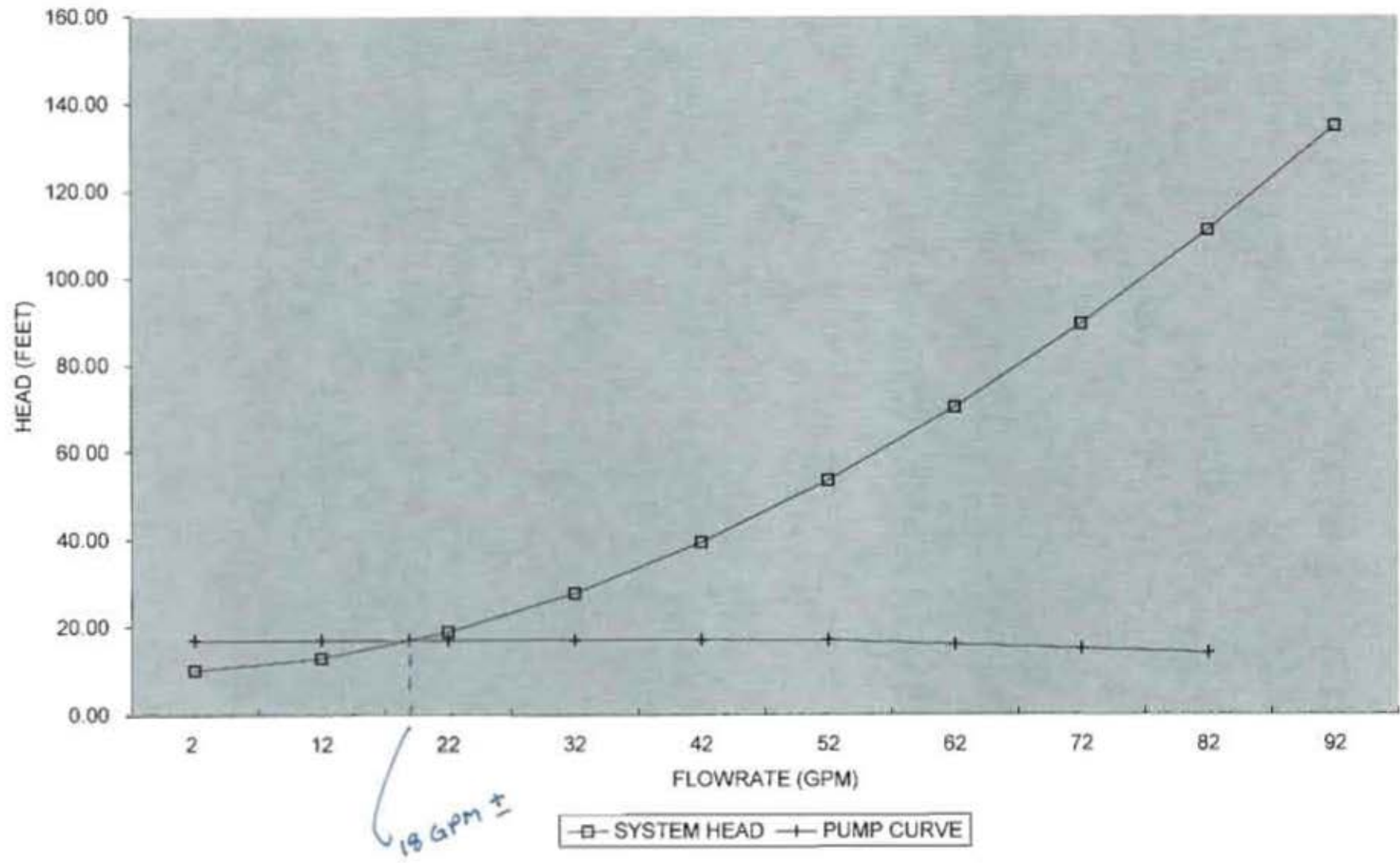
PROJECT NAME: Mallard North Landfill		STATIC HEAD: 10	
JOB NO.:		LOW FLOW: 2	
DATE: 06/08/09		INCREMENT: 10	
DESIGNER: J. Kucher		PNEUMATIC	
FILE:			

Segment No.					
Pipe Material					
"C" Value		150 pvc		150 HDPE	
Inside Diameter		2.000		1.000	

DESCRIPTION	L/d	QTY.	EQU. LENGTH	QTY.	EQU. LENGTH
Horizontal run	1	800	800	0	0
Vertical Run	1	20	20	0	0
Valves					
Gate	13		0		0
Butterfly	20		0		0
Check (swing)	135	1	23		0
Check (ball)	150		0		0
Elbows					
Standard 90	30	3	15		0
Standard 45	16		0	0	0
Standard 22 1/2	10		0		0
Standard 11 1/4	6		0		0
Long radius 90	20		0		0
Tees					
Thru flow	20		0		0
Branch flow	60		0		0
Miscellaneous	meter		2		0
TOTAL EQUIVALENT LENGTHS			860		0

STATION DISCHARGE (GPM)	STATIC HEAD	SEGMENT NO. 1		SEGMENT NO. 2	
		VELOCITY	DYNAMIC HEAD	VELOCITY	DYNAMIC HEAD
2	10	0.20	0.10	0.00	0.00
12	10	1.23	2.88	0.00	0.00
22	10	2.25	8.83	0.00	0.00
32	10	3.27	17.66	0.00	0.00
42	10	4.29	29.21	0.00	0.00
52	10	5.31	43.36	0.00	0.00
62	10	6.33	60.04	0.00	0.00
72	10	7.35	79.17	0.00	0.00
82	10	8.37	100.71	0.00	0.00
92	10	9.40	124.60	0.00	0.00

Mallard North Pilot Scale Test



AP4B

AutoPump®

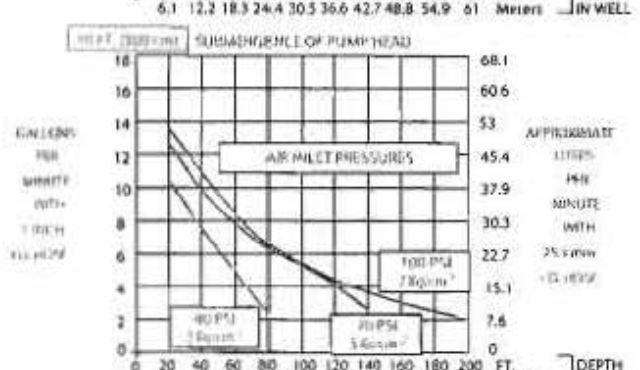
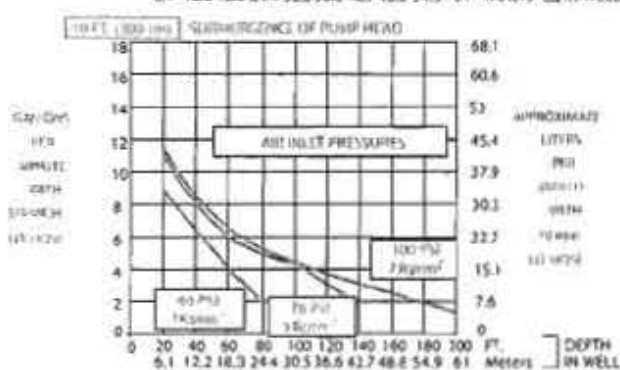
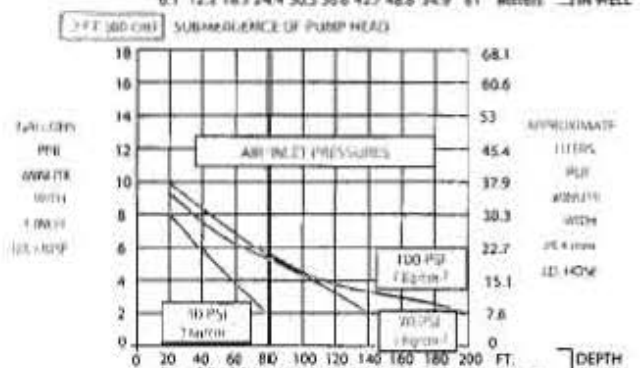
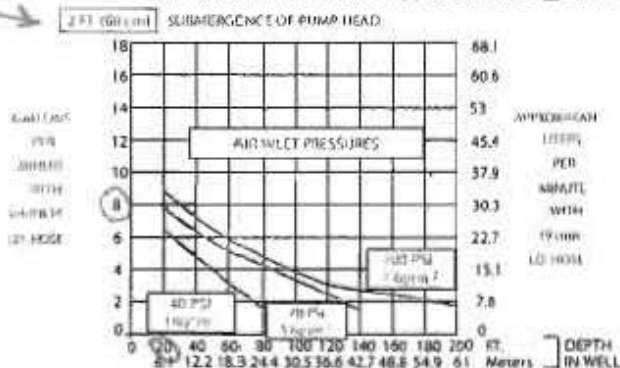
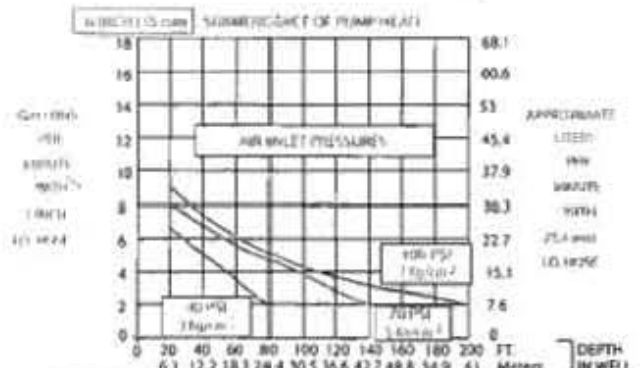
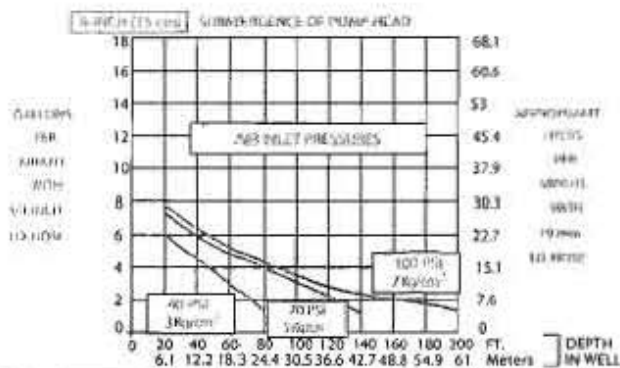
Bottom Inlet, Short

PNEUMATIC PUMP
TO LIFT STATION

Flow Rates¹

3/4 inch (19 mm)
Inside Diameter Discharge Hose
(Equivalent to 1-Inch O.D. Tubing)

1 inch (25.4 mm)
Inside Diameter Discharge Hose
(Equivalent to 1.25-Inch O.D. Tubing)



¹FLOW RATES MAY VARY WITH SITE CONDITIONS. CALL QED FOR TECHNICAL ASSISTANCE.

QED
The Quality Edge

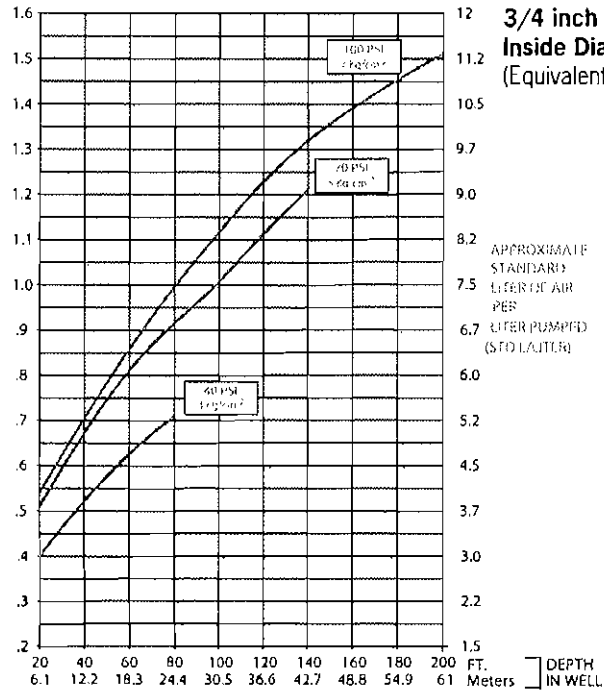
QEDenv® Bottom Inlet Short

AP4B

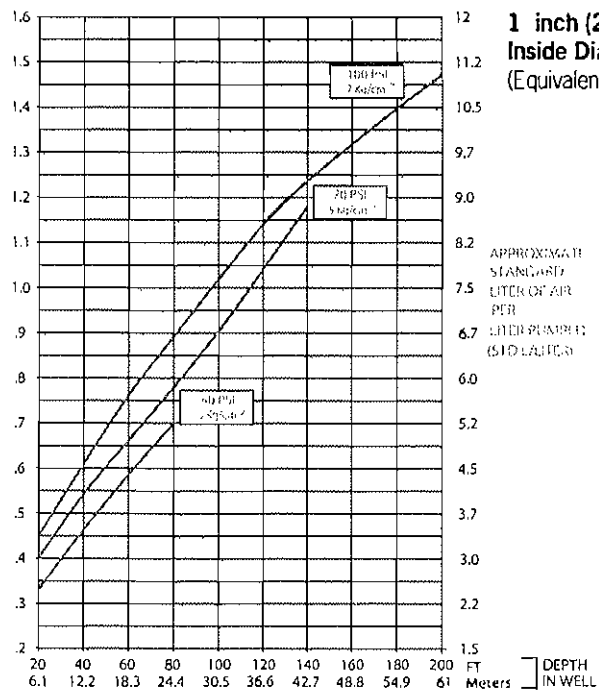
Air Consumption



STANDARD
CUBIC FEET OF AIR
PER
GALLON PUMPED
(SCF/GAL)



STANDARD
CUBIC FEET OF AIR
PER
GALLON PUMPED
(SCF/GAL)



AutoPump®

Guide to AutoPump Selection

Quick Guide to AutoPump Selection

An important advantage of an AutoPump system is the wide range of choices to truly match site needs. Below is a quick guide to the major configurations and options offered in the AutoPump line, to help you determine which models are best for your project. Of course, you can just call us at 1-800-624-2026, or email us at info@qedenv.com, for fast, personal service by our application specialists.

As a general guideline, pump model selection is usually based on the following primary application criteria. They are presented in the common sequence of consideration, but special site needs may alter the priority.

- **Maximum flow and depth-** pump model, depth, submergence and drive pressure determine the maximum flow rate that can be achieved; see specific pump curves for detailed flow information
- **Pump Diameter-** to fit the well ID; also, larger diameter pumps deliver higher flow rates, all other factors being equal
- **Inlet Position-** top or bottom inlet; a top inlet enhances removal of LNAPLs, while bottom inlets provide the highest flow rates and greatest solids-handling capacity for DNAPL, dissolved and landfill fluids
- **Actuation Level-** minimum height of liquid needed to actuate the pump, also equal to the minimum drawdown level; low-drawdown models are optimized for maximum drawdown
- **Materials of construction-** many models are available in upgraded materials for special applications, such as extremes of pH, suspended solids, high temperatures and aggressive solvents

AutoPumps	Model	Pg#	Inlet Position	Q.L. Diameter in/cm	Overall Length in/cm	Max. Flow gpm/lpm	Max. Depth ft/m	Act. Level in/cm
4" Bottom Inlet AP Pumps								
Long AP4-Bottom Inlet	Long AP4B	6	Bottom	3.5 / 8.9	53 / 135	14 / 53	425 / 130 ²	35 / 89
Short AP4-Bottom Inlet	Short AP4B	10	Bottom	3.5 / 8.9	41 / 104	13 / 49	425 / 130 ²	27 / 69
Low Drawdown AP4-Bottom Inlet	LD AP4B	14	Bottom	3.5 / 8.9	28 / 71	7 / 26.5	250 / 76	13 / 33 ¹
4" Bottom Inlet HammerHead Pro Pumps								
HammerHead Pro-Bottom Inlet	Long HHP4B	18	Bottom	3.5 / 8.9	51 / 130	13.5 / 51.1	250 / 76	33 / 83.8
Short HammerHead Pro-Bottom Inlet	Short HHP4B	22	Bottom	3.5 / 8.9	39 / 99	13 / 49	250 / 76	21 / 53.3
4" Top Inlet AP Pumps								
Long AP4-Top Inlet	Long AP4T	26	Top	3.5 / 8.9	57 / 145	10 / 38	425 / 130 ²	52 / 132
Short AP4-Top Inlet	Short AP4T	30	Top	3.5 / 8.9	42 / 107	9 / 34	425 / 130 ²	37 / 94
Low Drawdown AP4-Top Inlet	LD AP4T	34	Top	3.5 / 8.9	29 / 74	6.4 / 24	250 / 76	24 / 62
4" Top Inlet HammerHead Pro Pumps								
HammerHead Pro-Top Inlet	Long HHP4T	38	Top	3.5 / 8.9	56 / 142.2	9.8 / 37.1	250 / 76	53 / 134.6
Short HammerHead Pro-Top Inlet	Short HHP4T	42	Top	3.5 / 8.9	44 / 111.7	8.3 / 31.4	250 / 76.2	41 / 104.1
3" Bottom Inlet AP Pumps								
Long AP3-Bottom Inlet	Long AP3B	46	Bottom	2.63 / 6.68	52 / 132	7.3 / 27.6	220 / 67	31 / 79
Short AP3-Bottom Inlet	Short AP3B	50	Bottom	2.63 / 6.68	42 / 107	6 / 22.7	175 / 53.3	22 / 56
3" Top Inlet AP Pumps								
Long AP3-Top Inlet	Long AP3T	54	Top	3.4 / 8.64 ¹	57 / 145	5.4 / 20	220 / 67	53 / 135
Short AP3-Top Inlet	Short AP3T	58	Top	3.4 / 8.64 ¹	47 / 119	4.8 / 18.1	175 / 53.3	42 / 107
2" Bottom Inlet AP Pumps								
Long AP2-Bottom Inlet	Long AP2B	62	Bottom	1.75 / 4.45	55 / 139	2.3 / 8.82	300 / 91.4	35 / 89
Short AP2-Bottom Inlet	Short AP2B	66	Bottom	1.75 / 4.45	33 / 85	2 / 7.57	300 / 91.4	20 / 51
2" Top Inlet AP Pumps								
Long AP2-Top Inlet	Long AP2T	70	Top	1.75 / 4.45	57 / 144	1.9 / 7.2	300 / 91.4	52 / 132
Short AP2-Top Inlet	Short AP2T	74	Top	1.75 / 4.45	35 / 89	1.6 / 6.0	300 / 91.4	31 / 78

¹ Consult QED for higher flow requirements

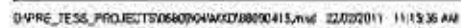
² High Pressure Option for 4" AP pumps

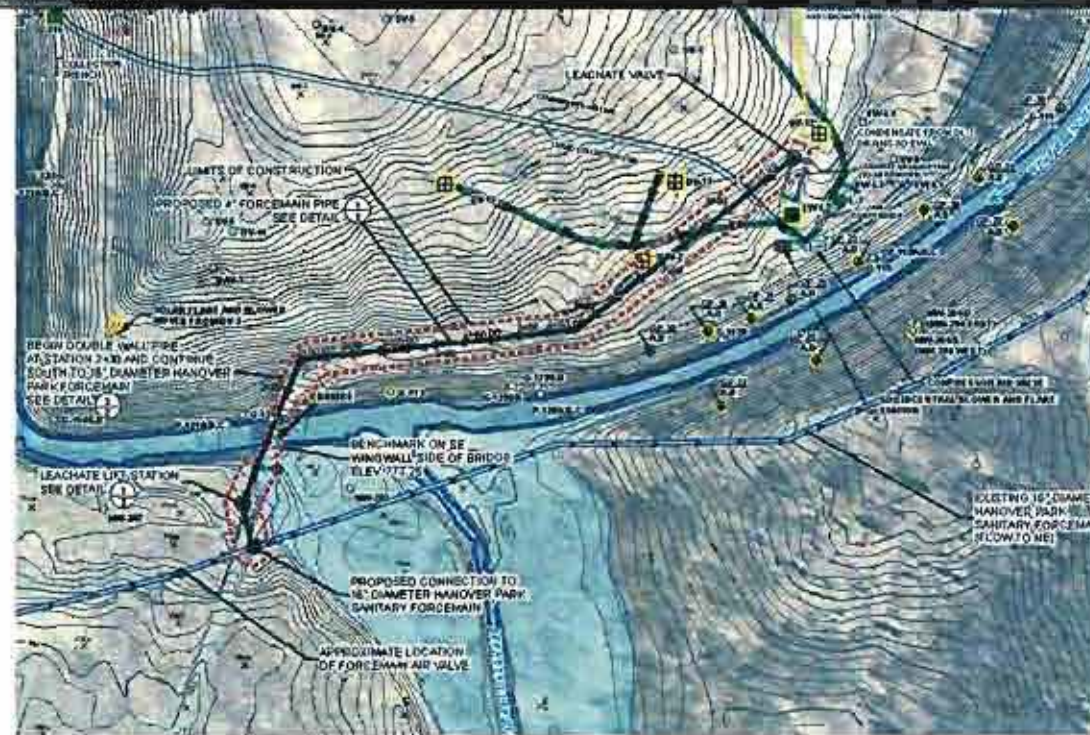
³ Optional radial inlet model provides 11.5" / 29 cm actuation level

⁴ Optional 2.63" (6.68cm) OD available

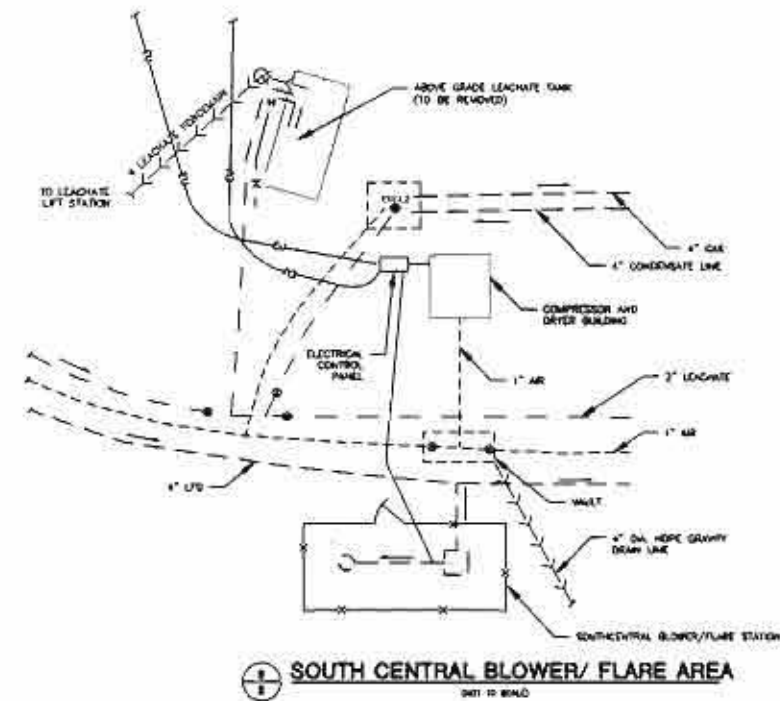
Attachment 5

Figures

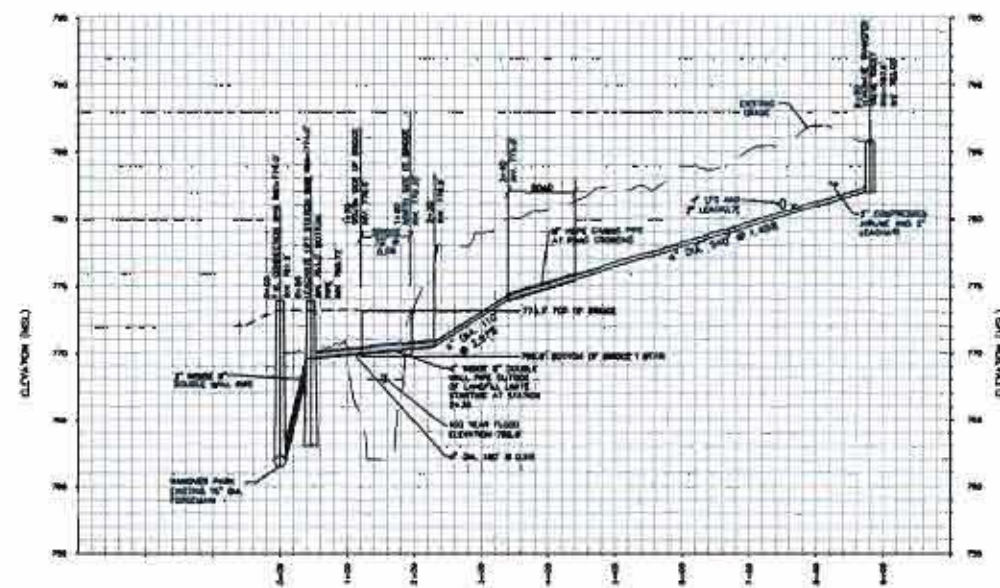




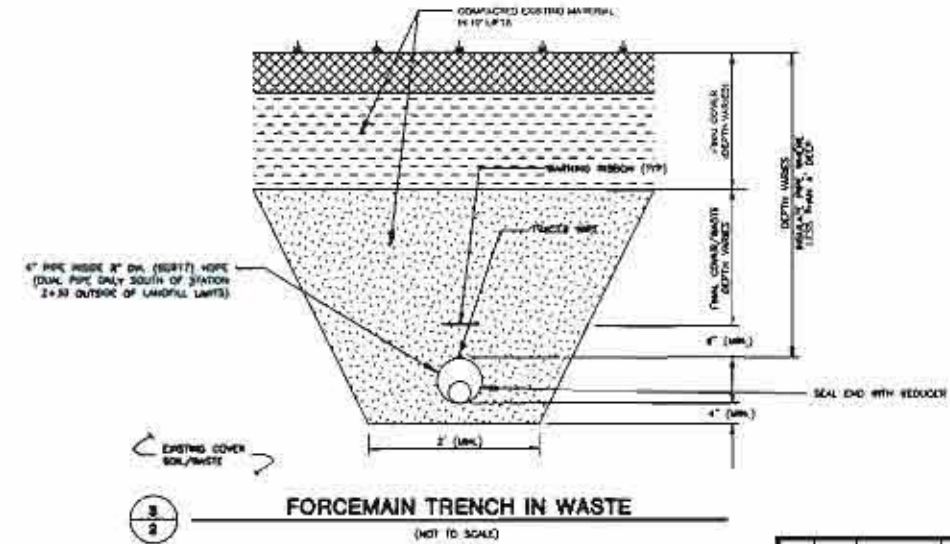
PLAN VIEW



SOUTH CENTRAL BLOWER/ FLARE AREA
SHIT TO BUILD



PROFILE - LOOKING WEST AND NORTH



FORCEMAIN TRENCH IN WASTE
(NOT TO SCALE)

NOTE: USE ASTM CLASS B BEDDING WHEN OUT OF WASTE

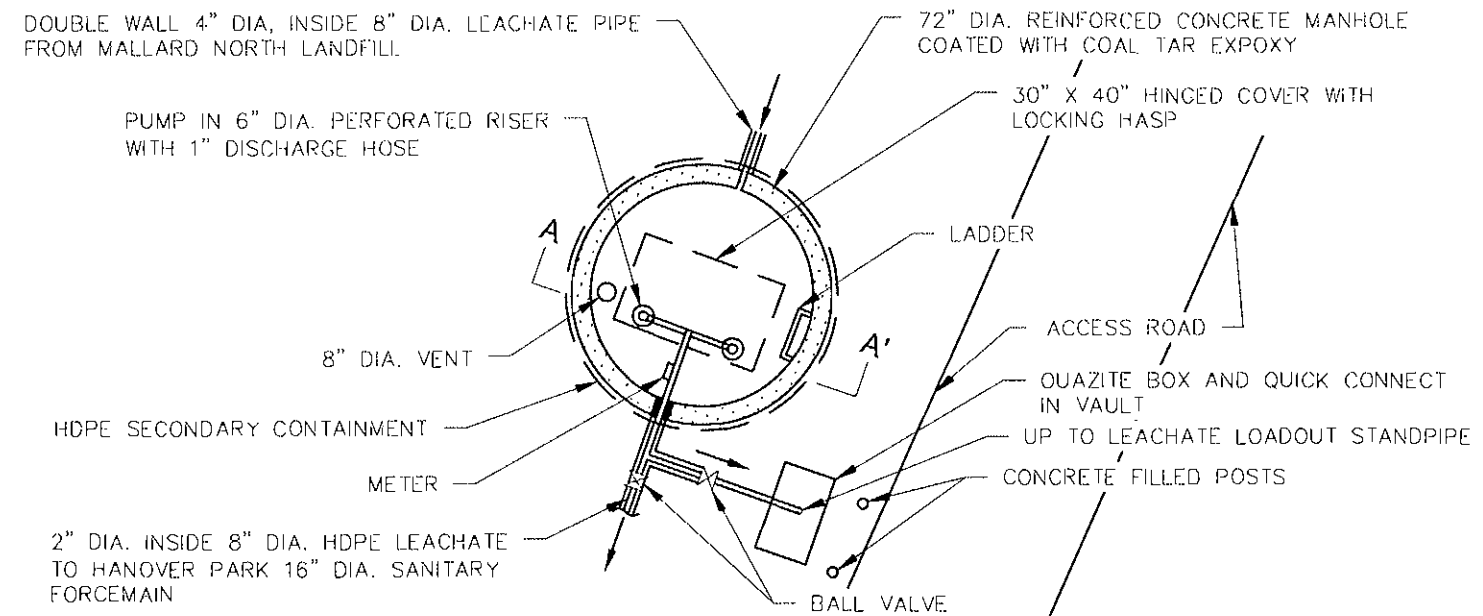
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WALLARD NORTH LANDFILL FOREST PRESERVE
DISTRICT OF DUPLAGE COUNTY LEACHATE PIPE AND
LIFT STATION

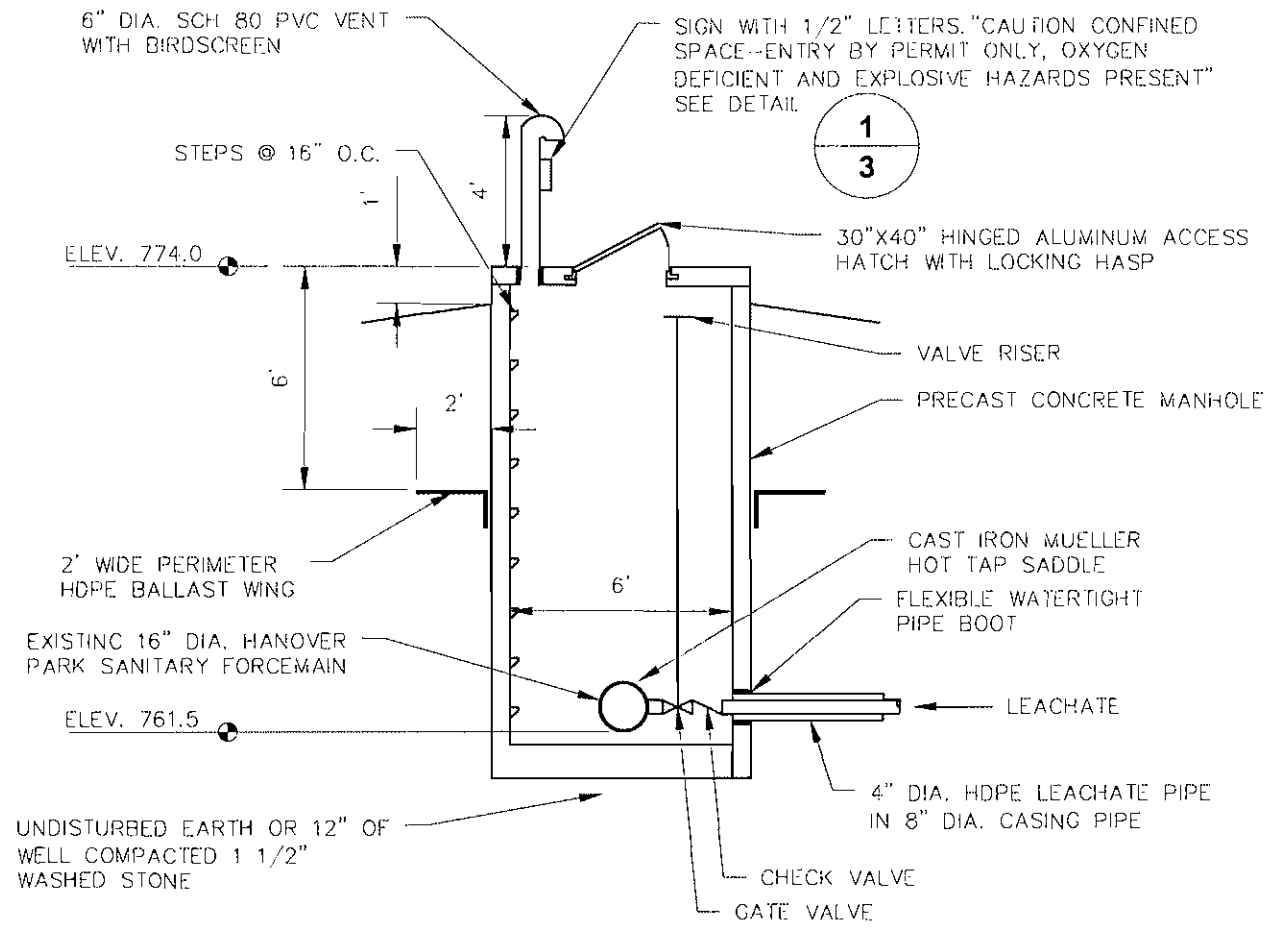
DETAILS

PROJECT NO.	2014-001	PROJECT NAME	WALLARD NORTH LANDFILL FOREST PRESERVE
DESIGNED BY	JCE	AS BUILT	NO
APPROVED BY	JCE	DATE PRINTED	2/2/2017
DATE	2/2/2017		
FIGURE 2			

For Wallard Land
Maplewood, MO 63041-1895
P.O. Box 0001 63041-0001
Phone: 636-231-1111 or Fax: 636-231-1112

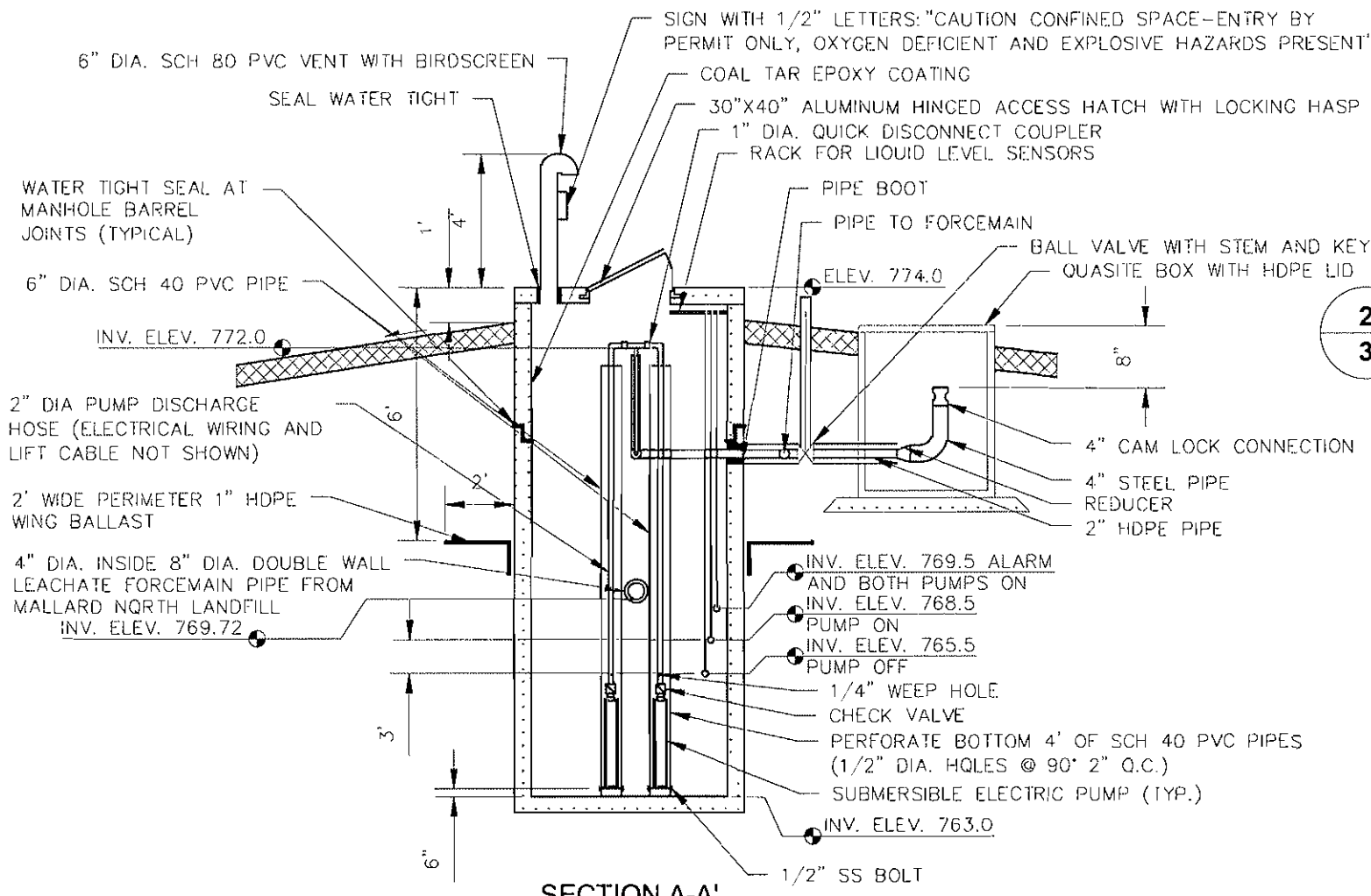


PLAN VIEW



HANOVER PARK FORCEMAIN CONNECTION
LOOKING NORTHWEST

SCALE: 1" = 5'



SECTION A-A'

LEACHATE LIFT STATION (LOOKING NORTHWEST)

(NOT TO SCALE)

PROJECT:			MALLARD NORTH LANDFILL FOREST PRESERVE DISTRICT OF DUPAGE COUNTY	
SHEET TITLE:			LIFT STATION DETAILS	
DRAWN BY:	METZA	SCALE:	PROJ. NO. 00-06809.04	
CHECKED BY:	JCK	AS SHOWN	FILE NO. 68090413.DWG	
APPROVED BY:	AJS	DATE PRINTED:	FIGURE 3	
DATE:	FEBRUARY 2011			
<div>744 Heartland Trail Madison, WI 53717-1934 P.O. Box 8923 53708-8923 Phone: 608-831-4444 Fax: 608-831-3334</div>				

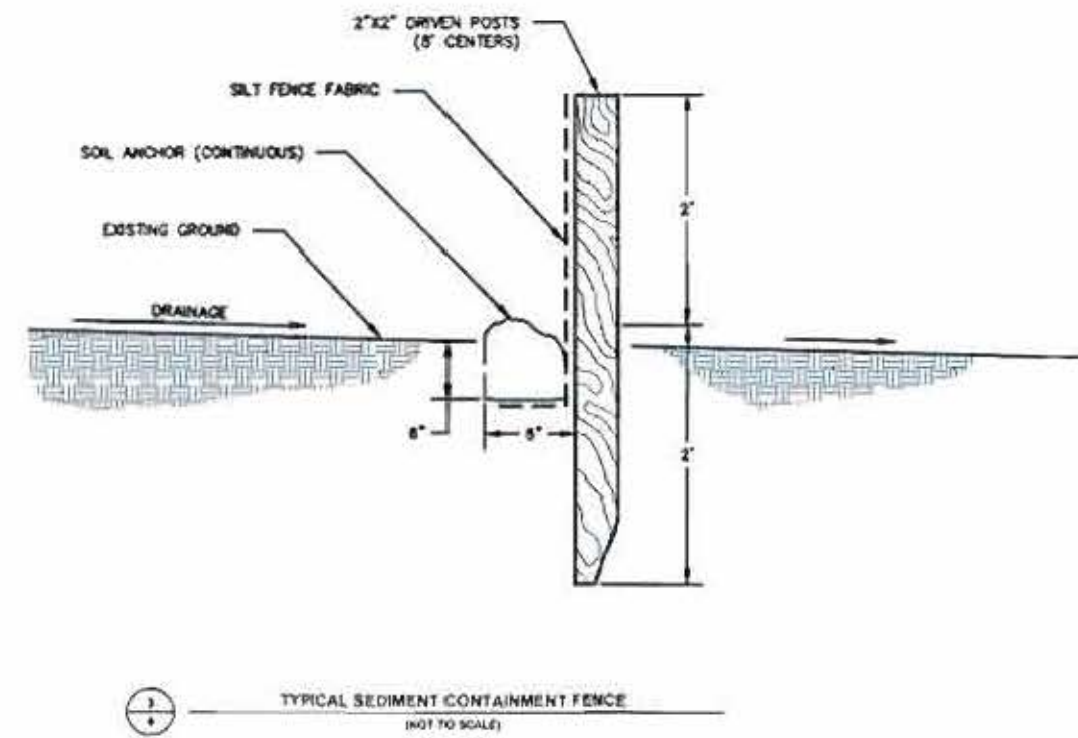
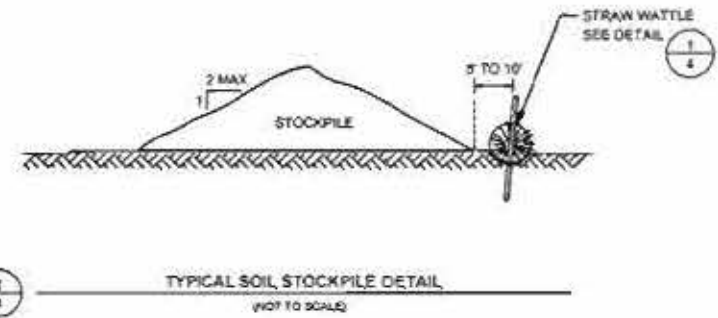
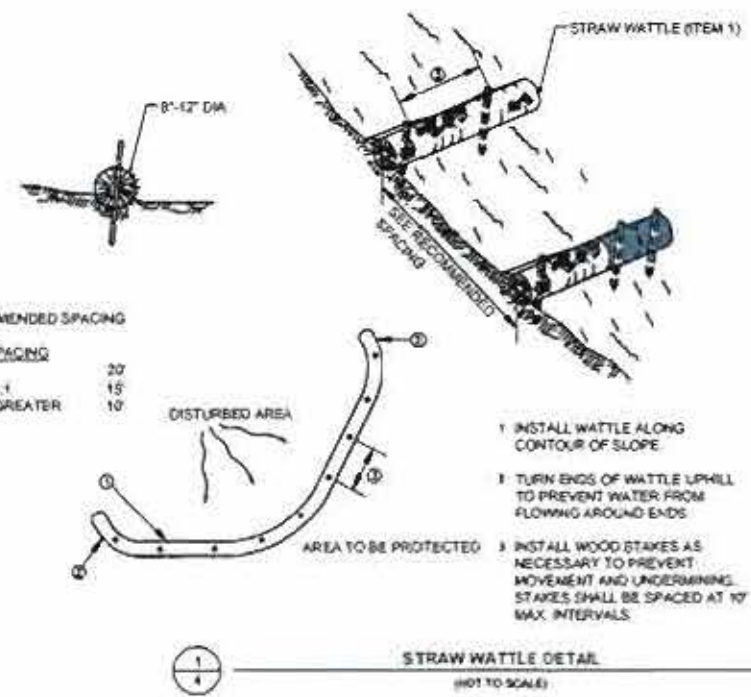
File Location: I:\PROJECTS\04
 File Name: 68090413.DWG
 User: METZA
 Plot Information: DWG TO PDF PLOT METZ, ALEX, PDF 11X17, BW, 11X17, February 22, 2011, 1:1 RMT 105SCH STANDARD, LW, CTB

1
3

2
3

RECOMMENDED SPACING

SLOPE	SPACING
<4:1	20'
4:1 TO 6:1	15'
6:1 OR GREATER	10'



NOTES

STOCKPILE

- IF DISTURBED AREAS WILL BE LEFT IDLE FOR MORE THAN 21 DAYS, INSTALL TEMPORARY STABILIZATION BY THE 14TH DAY.
- PROVIDE STRAW WATTLES AROUND DOWN-SLOPE SIDE OF STOCKPILE ADJACENT TO STEEP SLOPES, WETLANDS, WATERWAYS, SWALES, DITCHES, OR TILE INLETS.
- PLACE STOCK PILES AS FAR AWAY AS PRACTICABLE FROM WETLANDS, WATERWAYS, SWALES, DITCHES, OR TILE INLETS.
- WINDROWS LESS THAN 2' TALL AND HAVING SLOPES LESS THAN OR EQUAL TO 6:1 ARE NOT CONSIDERED STOCKPILES.

MALLARD NORTH LANDFILL FOREST PRESERVE DISTRICT OF DUPAGE COUNTY			
EROSION CONTROLS			
DESIGNED BY	MDZ	DESIGNED BY	MDZ
CHECKED BY	MDZ	CHECKED BY	MDZ
DATE	02/01/2011	DATE	02/01/2011
FIGURE 4		FIGURE 4	
RMT			